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Prelude to Peace

DURING the recent anxious days when we all felt deep concern for the future, even the normality of our journeys by rail was affected. We heard of plans to evacuate vast numbers of persons from London and other big centres; we were told of refugee trains, of lighting and food restrictions, of A.R.P. trenches dug by the lineside, and of many other prudent provisions designed to ensure that transport—the life-blood of the nation—should continue to flow with the least possible interruption during a national emergency. A walk round our termini showed us many unusual sights. Thus, at Euston, King's Cross, Paddington, and Waterloo, sailors and mobilised naval-reservists mingled with harassed householders hurrying their families to what they believed to be safer places in the North or West Country. At Victoria, the passengers on the outwards Continental trains were almost entirely of non-British origin. German servant girls, none smiling, many weeping, with piles of luggage, had left comfortable English houses to board the Dover boat express *en route* to the "Fatherland," while trains connecting with the Calais, Boulogne, and Dieppe boats carried young Frenchmen recalled to the Colours. Conspicuous too, were many Italians, obviously of the restaurant profession, all looking grim and sorry to leave London. By contrast, at the inward platforms arrived Britons whose faces clearly showed relief at being home again, but also bewilderment. The shadow of war was everywhere but, as we hope, all these things will prove to be but the prelude to peace.

The Sale of Transport

The goodwill of the public is as essential to the running of a railway as coal to the running of a locomotive. This was the theme of a recent lecture entitled "Salesmanship" given by Mr. G. T. Tait, Central Publicity Officer of the Indian State Railways. He admitted that the Indian railways were, on the whole, unpopular with the public, which included enormous masses of illiterates able to judge only from what they saw and how they were treated. As, however, much was to be said for the exception railwaymen might take to the way the public treated them, a vicious circle was formed. The same was true of the dealings of the railways with the public in connection with goods transport, especially now with serious road competition. Monotony of routine work made it difficult for the railway staff to maintain a fresh outlook; apathy dating from the time when the railway held the monopoly, tended towards a "taking for granted" attitude. The public was induced to look for minor causes for complaint rather than to realise the larger benefits of the whole railway system. If railway employees were to play their part in changing this attitude, they must themselves view the matter from a different angle. In a country peopled by a fifth of the world's population there was, remarked Mr. Tait, tremendous scope for the improvement and expansion of railway services.

* * * *

The Week's Traffics

Thanks mainly to an all-round improvement in passenger train traffics the receipts of the four main-line companies for the past week show a net decrease of only £31,000 in comparison with the corresponding week of 1937, whereas in the previous week the relevant decrease was £154,000. The aggregate percentage decreases are all lower.

	39th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	%
L.M.S.R. ..	+ 25,000	- 69,000	+ 5,000	- 39,000	- 1,807,000	- 3.62
L.N.E.R. ..	+ 6,000	- 16,000	- 14,000	- 24,000	- 1,481,000	- 4.79
G.W.R. ..	+ 17,000	- 13,000	+ 1,000	+ 5,000	- 814,000	- 3.88
S.R.	+ 18,000	+ 4,500	+ 4,500	+ 27,000	- 164,000	- 0.97

In comparison with the corresponding week in 1936 the traffics for the past week show improvement except in merchandise, as seen in the following table:—

	39th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	%
L.M.S.R. ..	+ 36,000	- 50,000	+ 23,000	+ 9,000	+ 255,000	+ 0.53
L.N.E.R. ..	+ 5,000	- 5,000	+ 17,000	+ 17,000	+ 242,000	+ 0.70
G.W.R. ..	+ 29,000	—	+ 13,000	+ 42,000	+ 285,000	+ 1.43
S.R. ..	+ 33,000	+ 7,500	+ 9,500	+ 50,000	+ 571,000	+ 3.54

Passenger train traffics to date in 1938 are £2,330,000 higher than for the first 39 weeks of 1936, and coal receipts are £750,500 better, but in merchandise there is a fall of £1,727,500.

* * * *

Reichsbahn Position Improving

The Reichsbahn continues to benefit from the increased trade activity in Germany, the results for the first six months of this year showing a further all-round increase over those for the corresponding period in 1937. Train-kilometres have risen by 8.7 per cent., the separate figures for passenger and goods traffic being 7.5 and 11.1 per cent. Passenger receipts rose to 2,177,450,000 RM., against 2,036,099,000 RM. for the same period last year, but goods receipts increased by 78 millions as against 147 millions, although the freight carried was out of proportion to those figures, due to the further extension of reduced rate facilities, especially for the carriage of raw materials. These results have been obtained only by particularly careful organisation, using rolling stock and staff

services to the greatest advantage. The Reichsbahn road transport services have also established a new record in all directions. Vehicle-kilometres, inclusive of hired vehicles or those run for the railway by associated undertakings, rose to 9.48 millions in June, 1938, compared with 8.91 millions in May and 7.48 millions in June, 1937. Goods traffic showed the greatest individual increase, with a monthly average of 8.23 million Km. over the first six months of 1938, against 7.55 millions for the same period in 1937. Passenger vehicle kilometres showed an average of 785,000 per month.

* * * *

Overseas Railway Traffics

Most Argentine railway traffics have continued to fall during the past fortnight although the Buenos Ayres Great Southern has improved to the extent of £6,576 in that period, and the Entre Rios is £2,276 up, making its increase for the year to date £15,435. A slight improvement is shown by the Great Western of Brazil and the Leopoldina Railways in last week's traffics.

	No. of Weekly Week Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
Buenos Ayres & Pacific ..	14th 73,139	- 7,196	961,231	- 123,323
Buenos Ayres Great Southern ..	14th 124,628	+ 5,459	1,646,279	+ 11,477
Buenos Ayres Western ..	14th 38,834	- 6,451	504,403	- 122,025
Central Argentine ..	14th 100,862	- 36,225	1,387,923	- 454,587
Canadian Pacific ..	39th 1,079,000	+ 124,400	20,069,200	- 951,200
Bombay, Baroda & Central India	24th 232,275	+ 17,700	4,031,700	- 86,100

Canadian Pacific gross earnings for the first eight months of 1938 were £16,912,200, a decrease of £1,237,200, and the net earnings of £735,800 were £1,250,600 less than for the corresponding period in 1937.

* * * *

A German Travel Experience

The German railways seem to have been surprisingly little disturbed during the recent crisis, and travelling home from Bavaria as lately as Sunday, September 25, when there were considerable troop movements by rail in progress, we reached the Dutch frontier station of Zevenaar punctually to the minute. The journey, however, had not been without interest. The fast Hook of Holland express due to leave Munich at 9.18 a.m. had been delayed in starting, and was further delayed outside Würzburg, 172 miles from Munich, awaiting the departure of the through D train from Budapest, which was more than three hours late. Eventually we left Würzburg 35 minutes behind time. Normally the Munich—Hook express overtakes the 8.18 a.m. Munich—Dortmund semi-fast at Würzburg, but we actually overtook it some 55 miles further on and ran into the Frankfurt terminus, where trains have to reverse, just as the delayed Budapest—Hook train drew out to continue its northward journey. In its turn the Dortmund train ran into Frankfurt, only some ten minutes behind time, just as our Munich—Hook train was leaving. From Mainz, where we had to pay a brief call, we continued the journey by the Rheingold express in which we had the entertaining experience of travelling on the left bank of the Rhine for about 25 miles parallel to the Dortmund train, which we had already seen twice, as it sped northward on the opposite bank. Since the latter stops at Niederlahnstein we eventually drew ahead and saw it no more.

* * * *

Tube Station Indicators

Some time ago we referred to the desirability of some additional indicators on the Bakerloo Line tube stations for the Harrow and Watford service. At that time the trains proceeding beyond Queens Park were distinguished by a broad blue band, but this distinction has now dis-

appeared. The direction boards in the corridors leading to the platforms, and on the platforms themselves, indicating the stations served, make no distinction as to the change of train at Queens Park, and although the regular traveller knows almost instinctively which train to take, the stranger is apt to accept the direction board at its face value and enter the first train that appears. It is true that there are nameplates on the front vehicle, but these are not always visible on a crowded platform. Then again the order "all change" at Queens Park is not always audible, and cases have occurred of passengers being carried on into the carriage shed there. This possibility, as well as the constant enquiries by mystified travellers, might be avoided by the provision of illuminated indicators, similar to those on the District and Northern Lines, supplemented, in the case of the intermediate trains, by notices to passengers advising them of the change at Queens Park.

* * * *

Another Clapham Junction

Clapham Junction is a household word to Londoners and travellers on the Southern Railway, but comparatively few have heard of the other Clapham Junction in Yorkshire. A traveller between Leeds and Heysham passes through this Clapham, and the 242nd mile post from St. Pancras is in the middle of the station. It is shown in public timetables merely as Clapham, but on the side of the signal box may be read the full legend "Clapham Junction." Instead of suburban smoke and the skyline of chimney pots around the London Clapham Junction, there are exhilarating moorland breezes and the mist-crowned summit of Ingleborough near by. The Yorkshire station forms the subject of an article in the current issue of the *L.M.S. Magazine*, in which it is pointed out that, though the village of Clapham can boast of only some 700 inhabitants, it is quite an important place, for on summer Saturdays some forty trains are dealt with there. Seventy years ago, before the completion of the Settle-Carlisle line, Scottish traffic from the Midland Railway passed through Clapham and Tebay *en route* to Carlisle, and this route is still occasionally followed by L.M.S.R. Anglo-Scottish expresses. During the great war, when rails were urgently needed in France, the up line between Ingleton and Clapham Junction was taken out and the traffic worked under single-line regulations by tablet.

* * * *

Railway Exhibits in Vienna

A considerable amount of information relative to the last 112 years of Austrian railway history is to be found in the Vienna Technical Museum, located near the Schönbrunn. Among the exhibits of the earliest date is an extensive collection of drawings, engravings, and manuscripts concerning the horse-worked Budweis—Linz Railway, and there is also preserved one of those curious 4-4-0 tank locomotives built in 1854 by Gunther for the Lambach—Gmunden section of that line. Correspondence between Riepl and the Stephenson is on show; and there is a wealth of material about the Kaiser Ferdinand's Nordbahn, opened in 1838, including the original charter, and the Jones, Turner & Evans 0-4-2 engine *Ajax*, built in 1841. The tender in the museum is not the original vehicle, but was built by Haswell in Vienna in 1847, and transferred to *Ajax* in 1867. Drawings or illustrations, some of them extremely crude, are on view of all four engines which took part in the Semmering trials of 1851, and of the remainder of the locomotive-section the greater part is taken up by exhibits of the work of Karl von Gölsdorf. Haswell exhibits are comparatively few, despite

the great influence that English engineer had on Central European locomotive engineering. A series of sections through injectors and pumps enables a good idea to be obtained of the development of boiler feeding from the time of the early Giffard, Schau, and Haswell injectors, and another series of exhibits shows the history of Austrian permanent way. Apart from details, the material relating to the last 30 years is mainly in the form of drawings and photographs.

* * * *

Traffic Control on the Victorian Railways

Details of the important selector telephone traffic control equipment in use on the busy Melbourne suburban lines of the Victorian Railways are given in an article on page 610. Traffic control was introduced in Victoria in 1926, and now functions on about 2,200 route-miles outside the suburban section. The official *News Letter* of the administration says that "it has been an impressive influence in the great improvements in passenger and goods train services throughout the State. The system has been invaluable." It goes on to point out that efficiency has been obtained thanks to the whole-hearted co-operation of all concerned, and that the despatcher is now able to direct station staffs and train crews rapidly and completely, thus ensuring more efficient operation of the trains. Traffic control has achieved much on the Victorian Railways, says the *News Letter*, and "is destined to exert an even greater influence on train operations in the future with, of course, increased benefits to patrons using either our passenger or goods train services." This confirms the experience of other railway systems.

* * * *

Belgian Congo Transport Amalgamation

The policy of the Belgian Ministry for the Colonies appears to include a general unification of all forms of transport in the Lower Belgian Congo (that is, round the mouth of the river) under its own subordinate establishment, the "Otraco," or Office des Transports Coloniaux. Already large strides have been taken in this direction, where the five principal transport concerns—three of which are retaining their separate entities as private companies until their charters expire—are now controlled by the Otraco. These undertakings are the Compagnie du Chemin de Fer du Congo, owning the Ango—Matadi—Leopoldville main line into the colony; the C. de f. du Mayumbe in the Boma—Mayumbe forest area, both of which have now been taken over entirely by the State; the Manucongo harbour and wharfage services; the Unatra Congo river steamship line; and the Citas forwarding and warehouse services. The principal reason for this unification of services was threatened competition upon the completion of the French Congo—Ocean Railway. Actually the Belgian Congo railway traffics have continued to expand by leaps and bounds, as stated in a news article on page 621, and the new programme of lines should ensure further traffic being brought down to the Belgian ports. It is expected that transport in the Upper Congo, that is, the Katanga district, also will be similarly unified before long.

* * * *

Signalling on the Brünig Railway

The considerable traffic carried at times on the single-track narrow-gauge Brünig line of the Swiss Federal Railways between Interlaken and Lucerne, some particulars of which appeared in our issue for June 17, 1937, necessitates careful signalling arrangements. Ordinary telegraphic block is used, with the well-known gong signals at the Lucerne end of the line and telephone elsewhere.

On the rack rail sections, where the speed of the fast trains is remarkably high for such working, trains have at times to be run in two or more sections, with the regulation green signal discs, and permissive operation is allowed for following movements. On the adhesion sections, however, the usual station-to-station working is observed. The most complete signalling is seen on the Interlaken—Brienz section, opened in 1916, with Jüdel double-wire frames near the stationmasters' offices, locked and detected facing points and home signals, with distant discs where necessary. Elsewhere the points are mostly hand worked, with home signals and detectors on the loop points. We noticed during a recent journey that some of the home signals are still of the red disc type, but at Meiringen the home and starting signals were colour-lights, as were a home and distant signal at Brienz. There were semaphore starting signals at the termini, but we saw none elsewhere. Possibly changes will be made if the line is electrified.

* * * *

Wagons for Special Purposes

Among the wagon-building programmes of the main-line companies this year the construction of special purpose vehicles again forms a much increased proportion. On the G.W.R. these include two types not hitherto used on this system—one a ventilated covered fruit wagon with slotted gauze ends and sides which prevent the infiltration of dust and dirt, and the other a specially sprung shock-absorbing wagon for the carriage of fragile goods. Six of the latter and 200 of the former have already been built. Orders have also been placed by the L.N.E.R. for 1,000 covered fitted wagons for fish traffic. These wagons will be used on the daily express fish trains from Aberdeen, Hull, and Grimsby to Billingsgate fish market. A special trolley wagon, designed to carry a load of 120 tons, but adaptable, by use of cantilevers, for a capacity of 150 tons, is also to be built by the L.N.E.R. for the conveyance without transshipment of exceptional loads of machinery to Continental destinations by the L.N.E.R. train ferry between Harwich and Zeebrugge. The vehicle will be adapted for running over Continental railways. Fifty all-steel 16-ton wagons are to be built by the L.M.S.R. at Derby works for the conveyance of light soda ash in bulk. The first of these will be placed into service next December.

* * * *

Tourist Traffic in Norway

Year by year Norway has been attracting an ever increasing number of visitors for the summer holidays, and the past summer has shown a striking increase even on the numbers of the previous year. Those entering Norway by rail and by regular steamship services are said to show an increase of nearly 30 per cent. this year, and road traffic has gone up by about 20 per cent. The figures for January to April show that the winter traffic increased by about 16 per cent., so that it is probable that for the whole of 1938 the increase will work out at about 20 per cent. The income derived from foreign tourists which amounted in 1937 to Kr. 67,000,000, is expected to reach Kr. 80,000,000 this year. The increase is ascribed partly to improvements in communication by sea with America, England, Belgium, and Denmark, and partly to the improvement and increase in the hotel accommodation. There is no doubt also that the enterprising publicity, particularly of the Norwegian State Railways, coupled as it is with the provision of a most excellent railway service, has made itself felt. The unsettled condition of Central and Western Europe has also had a tendency to deflect travellers to the more stable countries of the north.

The People, the Railways, and the Emergency

DURING the last few weeks the true significance of what war would mean has been brought home to the consciousness of the people in a new and unmistakable manner. Whatever may have been the extent of the awareness of the inhabitants of other countries to the danger, every citizen here has been a party, active or passive, to the timely preparations for a possible emergency. And for a very simple reason: modern warfare is no longer a matter of a mercenary army, on a distant front, or even of an expeditionary force. Air transport, in the development of which, ironically enough, military demands played an important part, has brought all the fearful possibilities of war to our very doors. So, in a modern war, the whole nation would be engaged. There can be none of the pretence of "business as usual" with which we betrayed our ignorance in 1914. Everyone must willy nilly participate, and the whole of the energies of the nation would be devoted to the single purpose. This is one of the lessons of the last few days, brought home to us in many ways, and perhaps more than in any other by the sight of rows of civilians, especially women and children, fitted with hideous gas masks, while our parks and even our own gardens, are disfigured with refuge trenches. Thus the old conceptions of "rules for international warfare" are forgotten, and the whole nation—men, women, and children—is armed, figuratively or in fact, for offence or defence. And furthermore, every person, not only in the great cities, but in the most remotely situated communities, is within reach by radio, of the central authority and its orders.

Our railways have afforded a significant indication of how war would affect the life of the nation, in the way they have again demonstrated the extent of their preparedness and readiness to respond to the call of the Government. Railway communication is of course a vital consideration in time of war, not only for military purposes at the front but also for the transport of reserves and supplies. The brilliant service performed by our railways during the last war has not been forgotten, or the silent efficiency with which the whole machine adapted itself, at a moment's notice, to the service of the State. But here again there is a noticeable change. The railways would, as before, in an emergency, become part of the war machine, but in addition to their ordinary service and military transports they would be charged with the evacuation of civilians from crowded areas and danger zones. Indeed this great task had already been the subject of consideration by a special committee, presided over by Sir John Anderson, the publication of whose report was strangely postponed. The evacuation of civilians had not only been decided and the necessary billeting arrangements authorised months ago, but all the arrangements had been made with the railway companies for the necessary transport. Fortunately the necessity did not arise for a general evacuation. Another step in the preparedness of the railways which affected the travelling public in London, was the closing of the tube lines under the river at Charing Cross.

Meanwhile the mere idea of the possibilities of aerial attack had crowded our main railway stations with "refugees" during the worst days. The ominous preparations, the gas masks, the trenches, the preparedness of the railways, even more than any military mobilisation, contributed to the anxiety of the people, with the effect that the nation was in direct contact with its Government to an extent which would have been impossible in previous emergencies, a fact which no doubt heartened the Premier in his great efforts. It is interesting to reflect that the

advances of science which have brought the dread possibilities of war to our very doors, have also provided means of communication and transport without which a settlement might have been impossible. A great deal has been said about the co-ordination of national effort in time of war, and the question will inevitably arise in any future emergency of some sort of universal conscription, not only of man power but of plant and other forms of wealth. In 1914 the railways were conscribed for national service, but other industries and forms of transport were left free, some of them to batten on the nation's need. This must not be forgotten if and when the question arises again. Fortunately the emergency has passed, but it will be remembered to the credit of the railway companies that in these historic moments, as in 1914, they were ready so promptly to respond to the call of the Government.

There can be little doubt that the close contact of everyone with the grim preparations roused the imagination of the whole people to the extent of generating a united will that there should be no war. The horror and futility of it united the thoughts of all—probably no less in the other countries directly concerned than in ours. It must have been this knowledge, gained perhaps from the politician's ability to sense the public will, that gave Mr. Chamberlain the courage and confidence to undertake his historic missions. He was aware of the people's unspoken purpose—the avoidance of war—and knew that, if he could achieve that purpose those who so earnestly desired it would care little about the methods. Like all experts clearly charged to produce a result, he must have freedom as to ways and means. That was his strength. The united will of the people gives them sovereign power, and just as we believe it was this power, exercised through the people's Premier, which has enabled war to be avoided now, so, no doubt, can other good acts be performed in future. This power derived from common thought is the essence of democracy—government in accordance with the will of the people—but, like all power, it should not be divorced from responsibility. If the people of the so-called democracies hope to survive future dangers, which the present respite has by no means removed, they must consciously and responsibly exercise their power; they must, by using the constitutional electoral means at their disposal, make their governments truly serve their clearly-formulated will.

* * * *

British Railways and the Crisis

THE aversion of a major European war which brought a sense of infinite relief to countless numbers of people did no less to the British railway managements. The British railways are indispensable for the movement of large numbers of people and heavy quantities of material, and the approach of a crisis in Europe caused an immediate and substantial increase in their normal carryings, both of passenger and freight train traffic. At an early stage the Minister of Transport appointed the Railway Executive Committee, consisting of Sir James Milne, General Manager, Great Western Railway; Mr. Frank Pick, Vice-Chairman, London Passenger Transport Board; Mr. G. S. Szlumper, General Manager, Southern Railway; Sir Ralph Wedgwood, Chief General Manager, London & North Eastern Railway; Sir William V. Wood, Vice-President, London Midland & Scottish Railway, for the purpose of advising the Government so as to secure that in a national emergency the lines were used in the interests of the public safety and for maintaining the supplies and services essential to the life of the community. Immediately upon its appointment, this committee began to hold daily meetings at a central headquarters where it was in constant touch with the various Government depart-

ments for the purpose of ascertaining, and arranging to meet, the manifold transportation and other requirements of the Services. Special committees of railway traffic and technical officers were constituted so that advice could immediately be tendered the committee upon matters of major importance to the railways, and decisions put into effect with the minimum of delay. Fortunately the turn of events rendered it unnecessary for the Government to exercise its powers to take over the railways, but plans were formulated to meet such a step.

Apart from the heavy calls which were made on the railway undertakings in connection with the conveyance of naval, military and air force personnel, and equipment generally, the operating departments were called upon to obtain and hold in readiness sufficient coaching stock to enable the evacuation of school children and non-essential population from London and other important centres to be put into operation at a moment's notice. They were also called upon to deal with large quantities of foodstuffs which were forwarded in anticipation of the evacuation schemes being carried out, and with the heavy voluntary exodus of the civil population from London and other places to the West of England. Concurrently, air raid precaution plans for the protection of personnel and equipment, and for ensuring the continued functioning of the undertakings in the event of attacks by hostile aircraft, were rapidly speeded up and the initial steps taken to make them effective. The railway companies' road transport facilities were busily engaged on work for the Government and local authorities throughout the country in connection with various defensive plans, and representatives of the railways were appointed to the Defence (Road Transport) Committee for the purpose of assisting the Minister of Transport in making the most efficient use of road goods transport in Britain in the event of a national emergency. Fortunately it did not prove necessary to put the major plans into operation, but sufficient experience was gained to show that, in such an unfortunate eventuality, the British railways would not be found wanting.

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Resignation of Mr. William Whitelaw

MR. WILLIAM WHITELAW who, for personal and family reasons, retired last Friday from both the chairmanship and the board of the London & North Eastern Railway Company to the great regret of his colleagues, occupied a unique position in the railway world. He was the only Chairman on any of the four main-line companies who had continuously held office since grouping. The Great Western has had two Chairmen, namely, the late Viscount Churchill and Viscount Horne; the London Midland & Scottish three, namely, the late Lord Lawrence of Kingsgate, Sir Guy Granet, and Lord Stamp; and the Southern four, namely, the late Sir Hugh Drummond, the late Brigadier-General the Hon. Everard Baring, the late Lord Wakehurst, and Mr. Robert Holland-Martin. During his three years at Cambridge from 1887 to 1890 Mr. Whitelaw was a leader in Scottish local activities, and from 1892 to 1895 he was M.P. for Perth City. What may be called his life work began with his election at the age of 31 to the board of the former Highland Railway Company in October, 1898. He became Deputy-Chairman in April, 1900, succeeding shortly afterwards to the Chairmanship, which he held until March, 1912, and again for a short period in 1915-16. During his first Chairmanship by the unremitting and enthusiastic attention which he devoted to the affairs of the company he succeeded in putting it on a sound financial basis and restoring it in 1903 to the dividend-paying list. Mr. Whitelaw joined the North British Railway Board in 1908, was chosen to be Deputy-Chairman in 1910, and

succeeded to the Chairmanship in 1912. To the North British Railway he brought the same qualities of concentration and enthusiasm which he had shown in the case of the Highland.

A born leader of men, of great business ability, and a good speaker, Mr. Whitelaw was just the guide that the Scottish railways required in the negotiations which resulted in their grouping under the Railways Act, 1921, with two of the larger English and Welsh groups, in place of the all-Scottish group originally proposed. When the London & North Eastern Railway Company was formed in 1923, he acceded to the unanimous wish of his colleagues that he should accept the Chairmanship although his personal preferences were for greater leisure to devote to other activities. Mr. Whitelaw's business interests were mainly in the railways with which he was connected, although he was at the same time a director of the Bank of Scotland. On the London & North Eastern Railway he was, almost, a whole time Chairman, but he took a firm stand against any proposal to require other directors to be whole time men. If such a rule had been in force the board would have been deprived of the valuable assistance freely given by men of wide experience and great knowledge of various trades and localities. A feature of London & North Eastern organisation is the three local boards for the Southern, North-Eastern, and Scottish areas, all of which meet quarterly.

Mr. Whitelaw spent a considerable time every day replying to correspondents. When stockholders wrote to him it was his general practice to send a handwritten reply. A strong conservative himself, the London & North Eastern Railway under his chairmanship pursued a liberal, we may even say, radical policy in the matter of improved facilities and the introduction of high-speed trains. He held decided views and when occasion arose had the courage to express them. When he was chairman of the Highland Railway, he inveighed against the futility of the railway competition then prevailing. In recent years his speeches and articles have shown that he personally favoured complete unification of British railways and even Government ownership. He consistently maintained that as things are at present, the railways cannot afford the existing scale of wages.

It is one of the several virtues of Mr. Whitelaw as Chairman of the L.N.E.R. that by his force of character and single-minded devotion to the interests of his company he has won the confidence of the stockholders, who are always heard patiently when they have anything relevant to say. By introducing in 1931 the practice of publishing with the annual report a review of the year's work he has given the stockholders a new interest in their undertaking and allowed more time at the meetings for the discussion of any new points that might arise. These annual reviews have shown them something of the immense work that has been done since grouping for the improvement of the system. The officers and staff who have co-operated so loyally with him in bringing this about will at the same time sorely miss the sympathetic encouragement given by his constant presence at their social and recreative gatherings. He will be a difficult chairman to follow, but Sir Ronald Matthews, his successor, whose business record is given on p. 617, will have the loyal support of all the company's officers and staff.

LONDON & BIRMINGHAM CENTENARY BROCHURE

A limited number of the special souvenir brochures issued in connection with the Euston centenary exhibition is still available, and while the supply lasts copies will be sold by post or on personal application to the Advertising and Publicity Officer, L.M.S.R., Room 400, Euston House, Eversholt Street, N.W.1, at 6d. a copy, post free.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

A Scenic Route to the Cardigan Coast

Great Western Railway,
Office of Superintendent of the Line,
Paddington Station, W.2
October 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In his letter which appears in your September 23 issue, "Vitesse" is rather less than fair when he suggests that the glorious scenery of the Upper Wye Valley in Central Wales has "received so little publicity from the G.W.R."

In point of fact, the Wye Valley is a part of the country which is never without its quota of publicity, not always exclusive to the G.W.R. but—as "Vitesse" will appreciate—jointly arranged with the L.M.S.R. On the boards of both companies may be seen today two posters by eminent artists, one of the valley itself by Gregory Brown and one of Ross-on-Wye by Claude Buckle. These posters follow on others which have appeared in former years. For several years the two companies have produced an illustrated folder—changed annually in design and in contents—of which many thousands are distributed over the country. As far as the G.W.R. alone is concerned, the Wye Valley is extensively described and illustrated, not only in the "Holiday Haunts" Guide, but also in other publications, and this year the company has produced a book—"Rambles in the Wye Valley"—by Hugh E. Page, one of the greatest authorities on that popular form of recreation. When it is remembered that the whole district, beautiful though undoubtedly it be, is but sparsely populated and, in consequence, can offer comparatively limited accommodation to visitors, the charge of "so little publicity" can hardly be made against either of the railway companies which serve it.

With regard to the suggestion which "Vitesse" makes for the introduction of a train to the Cardigan Coast via Gloucester or Worcester to Three Cocks, Bulth Wells, Rhayader, Moat Lane Junction, &c., the consideration of "population" is paramount. The G.W.R. has had the proposition before it in the past, but has found itself compelled to admit that the potential traffic could not, in the nature of things, justify the new service.

Your obedient servant,

J. DEWAR
Publicity Officer, Great Western Railway

L.M.S.R. (London & Birmingham) Centenary

Birmingham, September 30

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—As one interested in the welfare of railways may I crave a little of your space for a project very dear to my heart. The L.M.S.R., with a brave show at Euston, has celebrated the one-hundredth anniversary of the opening of the London & Birmingham Railway; and resolving too upon some permanent symbol of the event has named the 9.15 a.m. express to Birmingham and Wolverhampton the Centenary. Apparently the resources of the company have been somewhat overtaxed by the exhibition, for this latest addition to the fleet of famous named trains boasts but a single pair of roof-boards. I would ask all who are interested to communicate with me, so that we may investigate the possibilities of starting a fund, from the proceeds of which all eight vehicles of the Centenary may be provided with roof-boards.

Any surplus from such a fund I suggest might be set aside in readiness for the next time the old Furness locomotive *Coppernob* is exhibited. Then I sincerely hope that we shall be able to present the L.M.S.R. with a cheque large enough to defray the cost of fitting the chimney on to the engine. At Euston *Coppernob* reminded me of the ghost who carried his head under his arm!

I fear the L.M.S.R. was having a "spot of bother" about

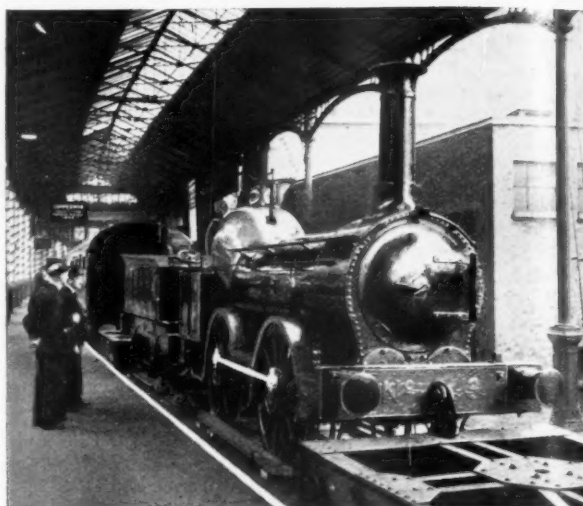


Photo.]

[Bassett-Lowe]

The "*Coppernob*" in the exhibition at Euston

roof-boards generally during the exhibition week. One evening a nine-coach express sailed into Euston: only four of its coaches carried roof boards; three of these bore the legend "The Royal Scot," the other puzzled the waiting populace exceedingly, it read, "The Night Scot!"

Yours, &c.,

BRUMMAGEM

[Regarding *Coppernob's* chimney, the old engine was mounted on a truck and owing to its height the chimney had to be removed during the journey to and from Euston every day of the exhibition in order to clear the bridges. The chimney was remounted every day. Probably the explanation was that our correspondent visited the exhibition either very early or just before its closing, when the chimney had been removed.—ED. R.G.]

Cross-Country on the Southern

17, Bannisters Road, Guildford

September 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The outstanding question concerning British railways appears to be this: are they operated to give the best possible service to patrons, or are they functioning, primarily, to satisfy the pet ideas, traditions, and attitudes of mind inherent, presumably, in British railway managers?

Let me illustrate. A resident of Guildford wishes to go to Southampton to see a friend off to New York, sailing in the s.s. *Normandie*, usually between 7 p.m. and 9 p.m. about 10 miles down Southampton Water. He wants to return the same day, and to travel via Portsmouth—the cheapest way. In order to get back he must leave Southampton at 8.30 p.m., arriving at Guildford at 11.11 p.m.—2 hr. 41 min. to cover about 65 miles between two considerable railway centres on the Southern Railway. But in any case this train is too early: he can't get to Southampton Central in time to catch it.

There is another train from Southampton at 10 p.m. It gets to Fratton at 11.02 p.m. Another train leaves Fratton at 11.02 p.m. for Guildford, so the railway people in Guildford say it can't be done. Is there anything "clever" about that? Another instance is the fact that it takes from 4 to 5 hr. to negotiate the distance of about 100 miles between Sherborne and Guildford, the same thing applying to Yeovil.

After having lived in the United States and Canada, what

I want to know is this: When are British railway managers going to make room for younger and more flexibly minded men? In Canada, I know whereof I speak when I say that the public just would not tolerate such a state of affairs. In fact no manager would dare attempt it. A reform is overdue here. What about it?

Yours very truly,

J. IVAN BOWERMAN

[The question as we see it, is how many people in the course of a year are likely to wish to make the journey from Southampton to Guildford at the time stated after seeing a friend off on the *Normandie*. Regarding our correspondent's assertion that railway managers in Canada would not tolerate the existence of such a state of affairs as set forth in his letter, apparently because they are "younger and more flexibly minded," we find that the two gentlemen who, as Presidents of the Executive of the great Canadian railway systems are presumably among those our correspondent has in mind, were born in 1872 and 1877 respectively. It seems, therefore, that as the present General Manager of the Southern Railway did not see the light until 1884, the connection at Fratton for which our correspondent holds him responsible must be regarded as a piece of youthful defiance to time and faith in human agility, rather than as evidence of senile lack of vision.—ED. R.G.]

Appropriate Locomotive Names

Berliner Maschinenbau A.G.,
vormals L. Schwartzkopff,
Wildau, Berlin
September 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Reading the paragraph on page 446 of your September 9 issue touching on the North Country names given to past famous locomotives, prompts me to suggest that the reinstitution of these for some of their successors, particularly of course on the L.M.S.R. system, would be a decided step in the right direction, the more so in view of the attention given by the railways in general to attract and interest the public by every means possible. Catching the popular imagination is attempted and probably attained in several ways and while one may ask "What's in a name?" I still think it would be rather nice to go to Euston and find The Lakes Express headed by an engine named, say, *Saddleback*; it would certainly be better than, for example, *Borneo*.

We can carry the idea further and arrange I think without undue difficulty to extend it and have appropriate names for the engines working the express services between, say, Manchester and London. Why not *Whitworth*, for instance? Then for the Birmingham trains *Nettlefold* and others readily come to mind, such as for the Welsh trains *Conway*. In the old days *Jeanie Deans* worked the "Corridor Diner" for Edinburgh and Glasgow for years, a good engine, a great designer and quite a suitable name. To sum up I certainly think more can be made of the naming of engines and while I think no engine is better than its boiler I am at the same time sentimental enough to be interested in the naming of locomotives.

I have seen many times the Webb 2-4-0 engines carrying the names you mention, usually between Euston and Carlisle, where of course they should be. I again express the wish and the hope that something might be done in the direction indicated, and in this connection I wonder if it is realised that the L.N.E.R., which has been a leader in high speed travel, and centred its energies in the first instance on Newcastle, has not yet named an engine *Jansons*—an engineer who has probably done most for steam than anyone since the days of Watt.

Yours faithfully,

E. CECIL POULTNEY

Railways Near Frankfurt

London, October 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The article in the issue of THE RAILWAY GAZETTE for September 30, on the jubilee of the Central station at Frankfurt, is a reminder that it is nearly the 70th anniversary of the opening of the last section of the Frankfurt—Bebra—Berlin main line, over which through traffic began on December 15, 1868, when the Hanau—Bebra portion was completed. Trains ran into the East station at Frankfurt. The line between Hanau and Frankfurt was then along the north bank of the River Main, but on December 1, 1875, the line *via* Offenbach, along the south bank, was opened. The Hanau—Bebra line originally ran through Elm station, but in 1914 the 2½-mile Schlüchtern tunnel was opened, and gave a direct run from Schlüchtern to Fließen. The timetables of 1879 showed three through trains a day from Frankfurt to Berlin, the times varying from 12½ to 17 hr., the distance being a little greater than by the present day route—avoiding Bebra station by a cut-off—of 334½ miles.

B. R.

PUBLICATIONS RECEIVED

Deterioration of Structures in Sea Water. Seventeenth (Interim) Report of the Committee of the Institution of Civil Engineers. London: H.M. Stationery Office. Price 9d. net.—The fifteenth report, dealing with the work of the committee from the date of its formation to the end of 1935, was reviewed in our issue of June 12, 1936. The sixteenth (Interim) report was issued in 1937 and was reviewed in our issue of April 30 of that year. Since that date the committee has suffered loss by the death of Sir John Aspinall, one of its original members. The present report contains the results of the periodical inspections of specimens under observation in different parts of the world, and as regards timber the results confirm previous conclusions as to the attacks by *teredo* and *limnoria*, creosote so far proving the best preservative, with or without other agents, although apparently no treatment has yet been discovered which will entirely eliminate the danger of damage by the

two organisms referred to. It is again noticed, however, that experiments in one part of the world do not necessarily furnish reliable guidance for the use of any particular variety of timber or preservative in another. As regards the tests on iron and steel, the 15-year experimental period of exposure has now terminated and the specimens are being examined. Details of loss of weight are tabulated, but the full results of the experiment will be published in the eighteenth report.

The Friction of Railway Brake Shoes at High Speed and High Pressure. By Herman J. Schrader. University of Illinois Bulletin No. 72, Vol. XXXV. Illinois: The University of Illinois, Urbana. 9 in. × 6 in. 54 pp. Paper covers. Price 60 cents net.—The tests described in this publication were undertaken because of the recent revival of interest in brake shoe friction. A general increase in the speed of trains and finally the development of the high-

speed streamlined trains has shown the necessity of supplementing the existing test data in order to be able to predict their stopping distances. The chief purpose of the tests was to determine the values of the coefficient of friction of railway brake shoes under conditions similar to those which prevail in ordinary service in stopping trains travelling at high speed by means of high pressures of the shoe upon the vehicle wheel.

During the investigation 432 stops were made; the tests were run on shoe pressures ranging from 4,500 to 20,000 lb., and under each of these pressures stops were made from initial speeds of 60, 80, and 100 m.p.h. During the tests 21 brake shoes were used, and much valuable information secured. The test results are set forth in textual and tabulated form in the bulletin.

Four appendices are added, namely (A), Variation of coefficient of friction during the stopping period; (B), Variation of coefficient of friction with shoe-thickness; (C), Relation between shoe bearing area and coefficient of friction; and (D), Temperature of wheel and shoe.

THE SCRAP HEAP

FREE BUS MEALS

The Ohio Greyhound bus line is putting buses in service between Detroit, Michigan, and Charleston, West Virginia, which not only are air conditioned, but which will offer the customers free meals, "served by personable hostesses." Built-in toilet facilities will eliminate the so-called "comfort" stops, and the buses will maintain an average scheduled speed of 38 m.p.h., or 10 hours overall; the rail time is about 9½ hours.

Visitors travelling along the quiet Suffolk byways in the Thetford—Bury St. Edmunds district are usually intrigued by a signpost which bears the legend "Euston 4½ miles," and immediately connect it with the great London terminus. Their surmise is correct, for although this little village contains a population less than that of many of the trains leaving Euston station, its name was bestowed on the square and the station (originally called Euston Square) in compliment to the ground landlord, who, besides having a number of other titles, was also Earl of Euston.—From the "L.M.S. Magazine."

The North-Western Traffic Commissioners always seem to have regarded double-deck buses with a somewhat unfriendly eye, and they have now announced that in future they will take

into account the difficulties of other road users in overtaking these machines. "One difficulty," says Mr. Chamberlain, their chairman, "is that double-deckers affect the speed on open roads by obscuring the view. A single-deck bus running at thirty miles an hour can be passed much more easily." To this "Knight-Errant" in *The Leyland Journal* has replied as follows: "Now where on earth Mr. Chamberlain looks when he is about to overtake a bus I don't know; I have not found on the road any justification for his views. If he looks round the side, he will find a single-decker as wide as a double-decker; if he tries to look through, it is just as opaque; there is just as little to be seen underneath (lorries are much better in this respect); if he looks in front on bends, a four-wheel single-decker is longer than a four-wheel double-decker; if he tries to look over the top, a single-decker is much too high to let him. But perhaps his car is fitted with a periscope."

FACILITIES FOR FREIGHT

Some of the many advantages of sending goods by rail are listed by the British Railways Press Bureau as follow:—

Comprehensive Facilities.—These cover the whole country by rail, road, and sea.

Regulated Charges.—A system of published rates is based upon an agreed classification of all commodities.

Constant Service.—Whether train-loads

or a single consignment, every facility is available.

High Speed Transit.—Provides a one-day service for merchandise between the principal towns.

Special Vehicles.—Fleets of specialised vehicles and containers are in service for regular traffics. Concentrated efforts are made to cope with seasonal commodities and unusual conditions.

Extensive Depots and Warehouses.—Give safe storage, enabling rapid handling and widespread distribution to be effected to owners' orders.

Unlimited Transport.—Special vehicles and trained staffs handle unusual loads up to 150 tons, either by rail or road, from site to site.

Complete Removals.—For households, farms and factories, expert packers, containers, and special trains are provided and the dismantling and re-erection of machinery undertaken.

Widespread Collection and Delivery.—Fleets of 35,000 road vehicles maintain regular cartage services. Country lorries operate from 2,750 railway stations.

Cash on Delivery.—Facilities are available for the value of goods up to £100 to be collected on delivery for small commission fees.

Refrigerated Transport.—Refrigerator and insulated vans, also containers, are provided to enable foodstuffs to be kept in perfect condition.

Sites for Works.—Complete records and up-to-date lists of vacant factories and sites enable assistance to be rendered for the establishment and development of all kinds of industry.

Neither money nor effort is spared by the railways upon improvement schemes, new equipment, new methods of handling and research in building up their national freight transport service.

One Hundred Years Ago

Extracts from the October, 1838, issue of "The Railway Magazine" (afterwards "Herapath's Railway Journal") and the oldest constituent of THE RAILWAY GAZETTE

Railway Bills passed during the Session of 1837-38.—Of sixty notices for bills, only twenty-six made their appearance, even by petition, in the House of Commons; and but eighteen have actually received the Royal assent. Twenty-eight of the notices were for new lines, yet two only have been prosecuted to the Royal assent; and one of them, the Edinburgh & Glasgow, came in under the peculiar circumstances of a pledge from the House last year; the other is a short colliery railway. Compare the railway proceedings of the past session with those of its precursor, and the contrast will be striking enough. Then fourteen new lines passed, which, with their branches, measured 471 miles, and the cost of construction was estimated at £6,861,285, the capital at £8,090,500, while now we have two solitary new lines of only, together, 48 miles, with an aggregate capital of barely £915,000. Compare also this pitiful number two with the 150 railway companies lately incorporated in America, in addition to those whose lines are finished and in progress, or

with the immense strides in railways now making on the Continent, and any Englishman will shudder at the start in improvement a few injudicious regulations have given to other countries.

St. Germain Railway.—The number of passengers during the first year, from August 26, 1837, to August 25, 1838, both days inclusive, has been 1,375,396, and the receipts have been 1,550,144 f. 35 c.

Croydon Railway.—The works of this railway are approaching to completion. It is considered it might be possible to open it during the present fall; but the directors preferring stability and certainty to haste, will not open it until, probably, early in 1839.

Railway Day and Night Signal.—Erected at the Grand Junction Station, Birmingham, the invention consists of two discs, two feet in diameter, placed at right angles, surmounted by a lantern showing four lights, but of three distinct colours—namely, two red, one blue, and one white. The discs are

painted to correspond. This apparatus is firmly attached to the top of the eccentric shaft employed in moving the points, and consequently turns with it unerringly, and can be seen at a great distance, affording the engineman or drivers ample time to govern the trains according to circumstances.

The opening of the iron railroad from Paris to St. Cloud took place today (September 6). It is the first section of the road from Paris to Versailles. The great works constructed on this part of the road are, the tunnel under the high road from Paris to Nanterre, and the two viaducts of Puteaus and Suresmes. The greater part of the tunnel in the park of St. Cloud is finished, and the whole will be completed in November. The opening of the section from St. Cloud to Versailles is promised to be in April.—A message from Paris dated September 6.

Since the opening of the sections of the iron railroads from Malines to Termonde, and from Termonde to Ghent, 21 diligences, 19 of which were in those directions, have been given up in East Flanders; but on the other hand, 54 new ones have been established in different directions, 23 of which coincide with the arrival and departure of the trains on the iron railroad.

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

CANADA

Streamlined 4-8-4 Locomotives for Grand Trunk Western Railroad.

Six streamlined 4-8-4 locomotives have recently been delivered by the Lima Locomotive Works Inc. to the Grand Trunk Western Railroad. These new engines, the first for this railway, are very similar to the Canadian National Railways 6400 class, and have been built to the requirements of Mr. John Roberts, Chief of Motive Power. They are intended for working the International Limited, the Maple Leaf, and the Inter City Limited expresses over the Port Huron-Chicago section of the Montreal, Toronto and Chicago international route.

CEYLON

An Australian View of the Government Railway

A high tribute has been paid to the Ceylon Government Railway by Mr. S. L. Kessel, Western Australian Conservator of Forests, who has been in Ceylon investigating the possibilities of the sleeper trade in Ceylon. On his return to Australia Mr. Kessel said:—

"I was very impressed with the efficiency of the Ceylon railways. The construction of a railway system over the high mountain ranges of the interior of the island was a remarkable engineering feat, and provides an exceptional opportunity for tourists to see the wonderful scenery under comfortable conditions. The whole island gives to the visitor an impression of prosperity, and the people are very friendly towards Australia."

Mr. Kessel, in reporting to his Government on the possibility of improving the sleeper trade with Ceylon, emphasised that if Western Australia wanted to retain the existing trade in jarrah sleepers for the Ceylon railways, it was essential that only sleepers of the highest quality should be sent, and indicated the possibility of an enlarged trade in jarrah and karri scantlings for general purposes.

The Sleeper Position: Order for Western Australia

Owing to the severe tropical conditions, the average life of sleepers of all timbers in Ceylon is much shorter than in more temperate climates, and for the broad gauge system, which extends over nearly 1,000 miles, some 250,000 sleepers are required annually for maintenance purposes.

Owing to the inadequacy of local sleepers to meet the requirements of the railway, an order for 140,000 jarrah sleepers has been placed in Western Australia. This order is being supplied in consignments and the first lot is expected in the course of this month (September).

The railway is now utilising all the local sleepers that have been inspected and found suitable, but the supply forthcoming locally is still far short of the demand. Considerable strides

have, however, been made in recent years as a result of the steps taken by the Ministry of Agriculture to encourage the industry, and at present all the narrow gauge railway sleepers and a large proportion of broad gauge railway sleepers are of local timber supplied from Ceylon forests.

Last year 106,766 broad and 17,771 narrow gauge sleepers were supplied locally, and 42,490 jarrah sleepers were obtained from Australia.

Coal Reserve for the Railway

The question of coal supplies for the Government Railway during war or national emergencies has been taken up by the Department of the Food Controller. The Food Controller has addressed the General Manager of the railway on the subject, and the latter has proposed to the Ministry of Communications and Works the creation of a coal reserve to enable the railway to tide over the situation which may be created at the commencement of a national emergency.

It is proposed that the railway should have a maximum reserve of six months' coal at the beginning of a grave emergency. The quantity of coal purchased by the railway last year amounted to 129,850 tons valued at Rs. 1,436,532 as against 151,445 tons valued at Rs. 1,833,271 in the previous year. The proposed coal reserve would be 60,000 tons if it is intended to last six months. The largest supplier of coal to Ceylon is British India.

INDIA

Faster Service on B.B. & C.I.R.

Important changes in passenger train timings to come into force from October 1, are announced by the Bombay, Baroda & Central India Railway. The Gujarat mail from Bombay to Ahmedabad will be accelerated so as to reduce the journey time by 25 min., and the new time of departure from Bombay will be more convenient. The Katiawar Mail, which will leave Bombay Central before the Gujarat Mail, will not carry passengers for Ahmedabad and stations between Bombay and Ahmedabad or passengers for the metre gauge Sind and Delhi mails. An additional train will be introduced between Anand and Cambay in each direction, connecting at Anand with the main line mail trains, thus securing a better service between Cambay and Bombay for both passengers and mails.

Success of Zone Tickets

The zone tickets introduced by the B.B. & C.I.R. from July 21 to August 10 proved very popular, no fewer than 79,000 people having taken advantage of them during the three weeks. The fare charged is exceedingly low, amounting to only Rs. 8 (12s.) for a

zone of about 1,000 miles. It is understood that the railway proposes to issue these tickets again periodically, the next occasion probably occurring during the Diwali holidays; in view of their popularity and cheapness, they are known as *Sukh-Savalat* ("happiness with cheapness") tickets. Zone tickets have been introduced with success on the East Indian Railway, and the travel-as-you-like tickets available over the Eastern Bengal Railway system have proved popular.

FRANCE

Level Crossing Accident

Four persons were killed and nine injured in a level crossing accident on the electrified line between Prades and Perpignan on September 13. When a motorbus containing 45 passengers was crossing the line, a railcar running at a speed of 50 m.p.h. crashed into the side of the bus, cutting it in two. The forepart of the bus fell into a ditch, while the other part was dragged along by the railcar a distance of 60 yd. The barrier had been reopened after the passage of a train despite the fact that a signal had been placed on the rear van indicating that the barrier was to be kept closed until the railcar had passed. The barrier keeper failed to notice the signal.

National Railways Budget

M. Guinand, President of the board of the National Railways Company (S.N.C.F.) is at present busy preparing the railway budget for 1939, which has to be presented to the Ministers of Finance and Public Works by November 1. As the company must make receipts cover expenditure and also a part of the financial charges for the first time, M. de Monzie, Minister of Public Works, has sent a plan of proposed economies to M. Guinand. Theoretically, the company may raise its transport tariffs to balance the budget, but in practice it is found that increases in fares and freight rates now tend to decrease passenger and goods traffic. Hence, reduction of expenditure appears to be the only solution. M. de Monzie proposes to simplify the railway administrative services, to reduce the crews on certain trains, to reorganise and commercialise goods tariffs, and, in the winter, to reduce the number of passenger train-miles.

Reducing Train-Mileage

During the last ten years, under the former railway companies, passenger train-mileage has constantly increased from 143 millions in 1926 to 159 million in 1936, a rise of more than 10 per cent. At the urgent suggestion of the Minister of Public Works, the S.N.C.F. plans to decrease the number of miles run by passenger trains on several of the main lines without any marked changes in the timetables by the substitution of railcars for trains over sections of line where the latter carry insufficient passengers to justify trains.

At the same time, the rail and road

co-ordination plans will be continued. This year, 1,500 km. (932 miles) of line had been closed to passenger traffic by May 15, and 500 km. (310 miles) of additional lines by July 1. A further 2,500 km. (1,554 miles) are to be closed by January 1, 1939, making the total for the year 4,500 km. (2,796 miles).

Criticism of Co-ordination Results

Some criticism of the probable results of rail and road co-ordination is contained in an article by L. R. Jacquot, published in *France Transports*. M. Jacquot points out that the co-ordination Decree of February 25, 1935, provided for the closing of 8,700 miles of line with an estimated saving of about fr. 200,000,000. As most of the Departmental councils had opposed the closing of so many lines in the country districts, a new co-ordination Decree on February 25, 1938, stipulated that no more than 5,000 miles of lines were to be closed to passenger traffic.

Undoubtedly, says M. Jacquot, the train is superior to the motorbus in regard to regularity and safety. On certain occasions when there is an unusual crowd of passengers with luggage, the motorbus becomes quite insufficient and even dangerous if unduly loaded. In certain cases, after trains have been replaced by bus services for several years, it has been found better to resume railway working by means of railcars, and the public has returned to the railway stations with evident satisfaction. The only possible justification of closing railways is the realising of substantial economies. But the saving of fr. 200 million, as indicated in the 1935 Decree, was a ridiculously small amount in comparison with the estimated railway deficit of fr. 5,000 to 6,000 million. Such a saving was far from warranting the closing of 20 per cent. of the S.N.C.F. lines. Moreover, as the S.N.C.F. must aid financially the alternative road transport, the net economies under the 1938 Decree are likely to be insignificant and probably nil, according to M. Jacquot. In conclusion, he recommends the placing of some of the secondary lines of the main systems on the same footing as local branch lines, which are operated more economically. In this way, he claims a substantial improvement in the finances of the railways should result.

ARGENTINA

New Air Services

Authorisation has been granted by Government Decree to a concern known as the Corporación Sudamericana de Transportes Aereo to operate a hydroplane commercial air service for the transport of passengers, mails, and parcels, between Rosario, Buenos Aires and Montevideo. By the terms of the concession the company is required to make a minimum of two return trips daily between Rosario and Buenos Aires, and at least one daily return trip between Buenos Aires and Montevideo. The service will be under the supervision of the Director-General of

Civil Aviation, to whom all matters relating to the types of machines used, air-ports, timetables and tariffs must be submitted for approval. The Government reserves the right, in the event of war or other national emergency, to take over the company's effects. It is stipulated that not less than 80 per cent. of the staff shall be Argentines, except in cases of *force majeure*. The company is required to furnish a guarantee of \$50,000 paper in cash or national bonds. The machines employed will be of the Savoia Marchetti type, propelled by three wasp motors and equipped with radio. Each hydroplane will accommodate 18 passengers.

A private company, known as the Compañía Argentina de Aviación (C.A.D.A.), has been formed in the city of Buenos Aires to operate a regular air service for passengers, mails, and parcels, between Argentine ports and neighbouring republics. It is proposed to establish an all-the-year-round service between Buenos Aires and Asunción (Paraguay); and a summer service between Buenos Aires and Mar del Plata during the holiday season—December 20 and March 20—and also one between Buenos Aires and Colonia (Uruguay). It is stated that the Buenos Aires—Asunción route will be shortly inaugurated *via* Rosario with a service of two trips daily.

SWITZERLAND

Transportation at the National Exhibition, 1939

The National Exhibition, which is to be held at Zurich from May to October, 1939, is intended to give a comprehensive picture of the resources, products and activities of Switzerland. The last National Exhibition was held at Berne in 1914, and the previous one at Geneva in 1896.

Construction of the principal buildings, most of which are to be of wood, is now well under way. The exhibition will be within the city limits on both shores of the lake of Zurich, and the two sections will be connected by frequent services of motor-vessels; four new boats, with a capacity of 160 passengers each, are to be delivered next spring. There will also be supplementary tram and bus services, and an aerial cableway will connect the two shores. The latter, however, is considered less as a means of transport—its capacity will only be about 300 passengers an hour—than as an attractive novelty, and will provide a thrilling ride over the lake and a splendid bird's-eye view of the exhibition and the city. Two light-weight cars, seating 20 passengers each, will travel along cables of 900 m. (nearly 3,000 ft.) span, between two 75-m. (246-ft.) towers each served by two lifts. The tower on the western shore of the lake is to have a large restaurant at a height of 25 m.

For internal transportation in each

section of the exhibition, 10 electric battery road trains, of 16 passenger capacity, will work on convenient routes. On the western shore, a novel means of communication will be a canal, 1.2 m. (4 ft.) wide, 0.8 m. (2 ft. 7 in. deep), and about 1.5 km. (9/10 mile) in length, which will form a loop serving the principal buildings and winding through a park. Boats accommodating 6 passengers will run at frequent intervals, gliding with the current, as there will be a fall of about 1 in 1,000 throughout; at the end of the trip, the boats will be carried on an endless belt back to the starting-point.

The Transportation Section of the Exhibition is in the vicinity of Zurich-Wollishofen station, with which rail connection has already been provided. The exhibition will also be directly served by this station, where special trains will arrive from and leave for all parts of the country. In the rail transport section will be shown some of the latest rolling-stock of the Swiss Federal Railways, including the new 12,000-h.p. electric locomotive for the Gotthard line, an electric high-speed twin-unit railcar for excursion traffic, and a diesel locomotive; models and photographs of new works and modern signalling installations; and maps, diagrams, etc., giving a comprehensive idea of the various aspects of railway operation and activities. Lake and river transport will be featured in another section, which will include models of the Rhine ports at Basle. Road traffic and air services will be given space in another building.

SPAIN

Nationalist Works Programme

In a speech at Santander on August 22, the Minister of Public Works, Sr. Alfonso Peña, outlined the programme of the Burgos Government for extensive public works in the near future. The plan is divided into three main sections: (1) roads, (2) irrigation, and (3) ports. As regards roads, the plan is in two parts, one consisting of maintenance and betterments for immediate execution, and the other of new constructions, to be deferred. The first part will include reconditioning of road surfaces, abolition of level crossings, by-passes, and repair of war damage. This part of the plan is estimated to cost 800 millions of pesetas (nearly £19 million), and will require five to six years, while the second part, consisting of the construction of 625 km. (388 miles) of new roads and the widening of existing roads to 7.50 m. or 6.00 m. (roughly to 20-25 ft.) according to class, is to cost 6,130 million pesetas (£144 million). The irrigation proposals involve an estimated expenditure of 1,600 million pesetas (£37½ million), divided into four groups, providing for the irrigation of about one million hectares. The duration of this work is estimated at about 12 years.

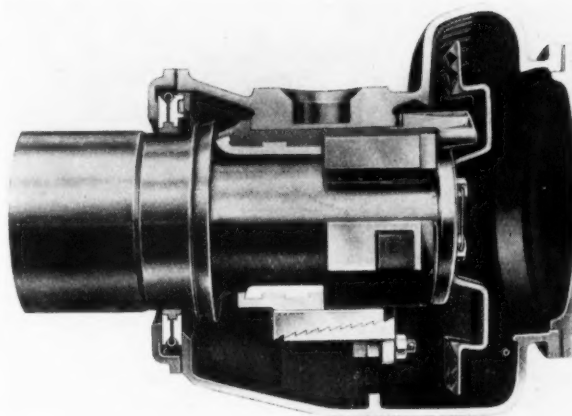
THE ISOTHERMOS AXLEBOX

Details of the latest developments for locomotives and rolling stock

THE axle bearings of locomotives and railway vehicles are items demanding the most careful methods of design and upkeep. The axlebox must be capable of standing up to the exacting requirements of all classes of track, ever increasing loadings and train speeds, and must, moreover, possess an ample margin of safety in operation to give satisfactory and economic service under varying climatic conditions. As is fully realised by every railway mechanical department and traffic officer, overheated bearings, or more familiarly "hot box trouble," may be responsible for much loss of time, inconvenience, and expense. Much has been done during recent years to improve the design and construction of railway axleboxes, including the use of roller bearings. Other measures have also been taken with the same object in view, namely, that of improving the principle upon which the axlebox is designed, and the method of lubricating the bearings.

In this connection much interest centres in the Isothermos axlebox, which has been widely applied on railways in various parts of the world and has been subjected to successive improvements so that at the present time its use obviates most of the disadvantages associated with the conventional pad-lubricated type of box normally used on locomotives and rolling stock. The term Isothermos is chosen to indicate equality of temperature, in the same sense as in physical geography the word "isotherm" indicates a line joining or marking points on the earth's surface having the same temperature at a given time or the same mean temperature for a given period. Increased rotational speed leads to a comparatively high temperature rise if sufficient means are not provided for the dissipation of the heat generated. High temperatures in the bearings accelerate the segregation of lightweight constituents from the lubricant, and if oil pads or waste packing are used, result in gradual incrustation thereof with frequent hot boxes as a consequence.

Of the many improvements which have successfully eliminated the defects of earlier designs, mention may be made of the safety pad, Fig. 1, or alternatively, the under-bush, Fig. 2, which, apart from other advantages,



Section drawing of Isothermos axlebox with adjustable under-bush

effectively prevent the oil flinger coming in contact with the casing; also, the dust shield housing instead of being cast integral with the box is now detachable, the face of the back of the box and the interior of the housing being machined. The dust shield itself makes an effective seal on these machined surfaces and is guaranteed dust-proof and rain-proof. It is lined with leather.

The outstanding feature, however, of the improved box is the design of the bearing brass on the hydro-dynamic principle enunciated by Osborne Reynolds and used by Michell at a later date in his thrust block bearing for propeller shafts and the like. By means of a lead-in for the lubricant at the side of a bearing it is possible to produce between the two surfaces a cohesive oil film which will stand the highest loads. Consequently, the delivery of the lubricant direct to the pressure area of the bearing

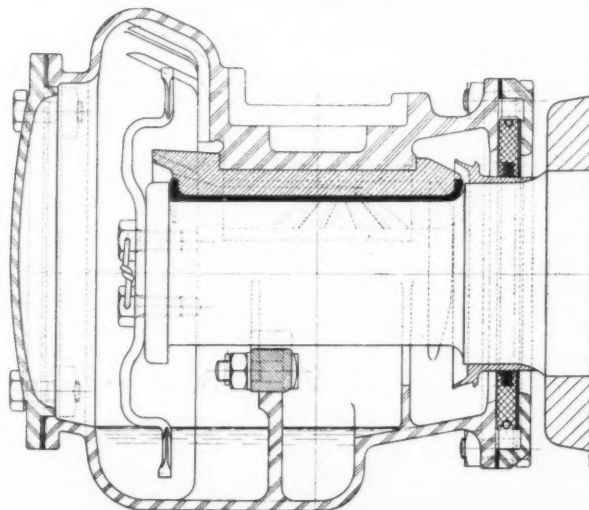


Fig. 1—Isothermos axlebox with safety pad

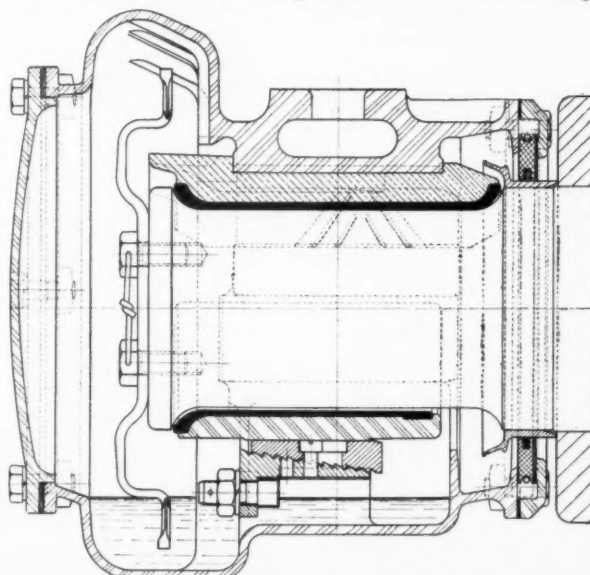


Fig. 2—Isothermos axlebox with adjustable under-bush

by means of oil channels or grooves has been discarded, and the oil is led to dripping edges on the sides of the brass outside the bearing area, and thence to the sides of the revolving journal. The sectional views of the bearing brass and journal, Figs. 3 and 4, illustrate clearly the difference between the old and the new systems. Fig. 4 shows the manner in which the lead-in is given to the lubricant as it is carried to the bearing area by the journal.

From tests carried out under service conditions at 88 m.p.h. with an axle-load of 12 tons, the temperature rise

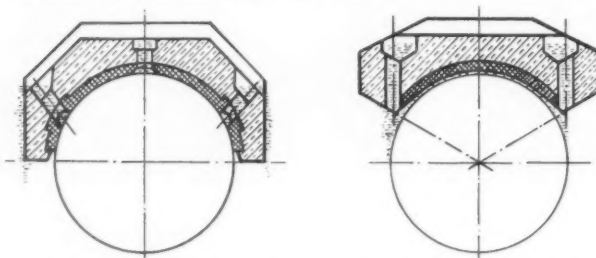


Fig. 3 (left)—Original design of bearing brass with oil fed direct to pressure area. Fig. 4 (right)—Improved design of bearing brass with oil fed to side of brass and "lead-in" provided

of the axlebox casing at the crown was 68° F. for the Isothermos and 158° for the pad lubricated bearing. It may be safely claimed, therefore, that an axlebox which provides oil circulation has considerable advantage over the usual form of pad-lubricated or waste-packed box. Statistical data compiled from experience on large railway administrations in various parts of the world show that the oil consumption of Isothermos axleboxes is astonishingly low. Provided the component parts of the box are correctly assembled in accordance with the service instructions, the oil consumption is only 2 per cent. of that of pad-lubricated or waste-packed axleboxes. One filling is sufficient for 80,000 miles. In some cases axleboxes have run 100,000 miles on a single filling.

Dust Shield and Oil Seal

The effective system of lubrication together with the improved dust-proof shield now provided, and careful designing of other component parts, have resulted in very greatly reduced wear on the bearing brass and journal. Under differing geographical and climatic conditions, mileages of 500,000 reveal a wear of only 0.004 in. to 0.016 in. on the white-metal lining, the reduction in journal diameter being negligible. Correspondingly little end wear is experienced with the type of box incorporating the under-bush device.

Shock Absorption and Maintenance

The advantages of the under-bush are not confined to its capacity for resisting end-wear. It is fitted as an alternative to the safety-pad in applications of the axlebox to the heavier types of rolling stock operating under modern high-speed traffic conditions, and also where conditions are onerous due to curvature of the track. It assists not only in preserving the oil film on the journal, but by means of the surplus oil trapped between itself and the journal, provides a hydraulic damper which absorbs the vertical shocks caused by surface irregularities of the track. Prevention of this hammering of the journal in the bearing brass eliminates one of the most prolific causes of crumbling of the white-metal lining and fracture of the brass itself. The under-bush prevents, as does the safety pad, the displacement of the journal in the box such as might be caused by a rough shunt.

Provided the original application is carried out in accordance with the service instructions issued, and anti-friction metal of the required quality is used for relining the brass when necessary, also gaskets and dust shields are maintained in good condition, the oil consumption for a 9-in. by 4½-in. box should not exceed 0.28 ounces per 1,000 miles. No special or expensive grade of oil is necessary, but it is important that all additions should be of uniform quality, of the same grade, and free from dust or other extraneous matter. The mileage that Isothermos axleboxes will run irrespective of climatic or operating conditions on one filling of oil makes it unnecessary to give them the frequent periodical inspections which are customary with pad-lubricated or waste-packed boxes. The latter types require attention at least every 4,000 miles, as against 80,000 miles for the Isothermos. Such repairs or replacements as may be required after extended mileages, can be carried out by an ordinary workman without any special tools and appliances. The assembly and dismantling of the axlebox are also simple matters, and do not, as in the case of roller-bearing axleboxes, require special equipment and specially trained mechanics.

Friction Coefficient

As a result of reliable tests it has been established that the coefficient of friction with an Isothermos bearing is 0.002 at a speed of 50 m.p.h., and that it decreases to 0.0015 at 100 m.p.h. or about 25 per cent. of a pad-lubricated bearing. This is an important consideration in determining train loads per unit of power. Starting conditions with modern plain bearings such as are used with the Isothermos box, are sufficiently well known by experience to need reiteration here. After the wheels have made less than half a revolution the frictional resistance is not higher than under normal running conditions, owing to the oil feed by capillary attraction providing a sufficient quantity of oil in the narrow gap between the journal and the brass. Laboratory tests with a standard carriage wheel and axle show that a complete oil film is formed even before the rotational speed of 4 r.p.m. is reached. With this speed of rotation, the friction coefficient is 0.0015, i.e., very near the lowest figure.

The advantages claimed for the improved Isothermos axlebox, whether fitted with a safety-pad only, or alternatively with the under-bush, are as follow:—

- 1.—Preservation of the continuous oil film by eliminating all oil grooves from the pressure area of the bearing.
- 2.—No restriction of the copious flow of oil through the bearing brass to the journal outside the bearing area.
- 3.—Distribution of the lubricant on the whole length of the journal.
- 4.—Suitability of bearing brass of nominal bore for application to journals of reduced diameter without refitting.
- 5.—No appreciable wear on bearing brass or journal for mileages up to at least 150,000 due to the continuous oil feed.
- 6.—No hammering at speed or displacement of the journal in the box by rough shunting or other cause due to the provision of a safety-pad or under-bush.

The additional advantages of the under-bush are:—

- 1.—Preserves an adequate oil film on the lower half of the journal even when the vehicle is stationary.
- 2.—Lubrication of the bearing is assured during the first half-revolution of the wheel at starting.
- 3.—In conjunction with the top brass it provides increased resistance to lateral thrust of the axle, and thereby diminishes liability to end wear.
- 4.—Provides a hydraulic shock absorber between the under-bush and the journal, thus preventing actual metallic contact between the two.

J. Stone & Co. Ltd., the representative in this country for the Isothermos axlebox issues a very informative brochure dealing with its construction, and also, as a recent addition to the firm's literature, a small handbook entitled "Service Instructions," affording in a convenient and well planned style, information necessary for the maintenance of the box.

SPEED IN RELATION TO SIGNALLING*

Problems of drivers' reactions to signal aspects, braking distances, and signal spacing on lines where high-speed and ordinary trains are run

THE fundamental axiom of train working, that one train only shall occupy a section of track at any time, implies that a following train can be brought to a stand before colliding with it. To run non-stop trains it is essential to give clear and unmistakable signals informing drivers of the state of the block section. This involves at the present time the provision of fixed signals, each with its own meaning and associated problem.

If we suppose a train to be stationary, we have then to consider a second train approaching at speed, which must be stopped before reaching the first. The nearest point to which the second could be allowed to approach under block signal working is determined by the distance known as the overlap. This is in many cases 440 yd.; in some cases as little as 50 yd. In some countries the overlap may be to all intents and purposes zero. Sufficient distance must be allowed for a train to be braked, and some allowance must be made for a driver to observe his signals. There are, therefore, three distances to be considered when stopping a train. Each has considerable bearing on the capacity of the line.

The Overlap

The distance to be allowed for the overlap has been argued from three points of view—(a) a factor of safety, (b) emergency braking distance, and (c) some allowance for misjudgment by drivers.

Until circumstances began to force a different outlook, many railway officers desired a considerable distance between two trains when stopped under the conditions in question. Generally there were always at least two stop signals between pairs of trains. While this is so still in many cases, various methods have been adopted to avoid the considerable delays which have often resulted, such as the introduction of block regulation 5, freer locking in many instances, and multi-aspect signalling, but still the overlap is with us, although not greater than 440 yards.

The theory that the overlap should be equal to emergency braking distance leads to considerable difficulty regarding the braking pressure which can be applied to wheels. The maximum braking pressures available are not sufficient to stop trains within reasonable limits when speeds reach the present-day heights. It would appear that at present the overlap should be as great as the usual distance allowed between distant and home signals but such overlaps would be disastrous to carrying capacity. When considering errors of judgment what distance can be fixed satisfactorily to allow for them on a driver's part? Assuming that they amount, in effect, to ten seconds delay before he acts, then at 20 m.p.h. he will have travelled about 100 yd., and at 120 m.p.h. 600 yd. With speeds rising almost yearly even this distance will probably be considerably exceeded.

With properly placed track apparatus and modern brakes it should be possible in time to eliminate the overlap by A.T.C., especially in view of the fact that the braking distances given by the chief mechanical engineers' departments would appear to be very liberal under modern conditions. An example of the effect of a full A.T.C. brake

application, with steam not cut off, is given in THE RAILWAY GAZETTE for April 22, 1938.

Braking Distance and Sighting Distance

It is strange there is apparently no information published increasing our knowledge of the science of braking over Galton's classic papers of 1878. Possibly the request for braking distances of 2,000 yd. and more, will stimulate efforts to bring braking distances down to more reasonable figures. The great distance required to stop the extra high-speed passenger trains now running and the partly braked fast goods train, is tending to radical changes in the display of signal aspects. Apparently the practice at the present time is to introduce various signals, from double yellows and double greens to varieties involving yellow and green, for the signal aspect at which a driver of a high speed train has to apply brakes. The possible application of A.T.C. may have possibilities in reducing headway. Sighting and braking distances are, in effect inseparable. The braking distance is the actual distance in which a train can be brought to a stand; the sighting distance is that which corresponds to the time in which a driver can see the visual signal and take action. The driver's response to a signal is going to be a very important factor when speeds become still higher.

A driver moving at high speed must see a signal at a considerable distance before he can observe it clearly; the higher the speed the farther away must be the signal, and there are two factors to indicate the point at which brakes must be applied to a train at its maximum speed, namely:—

- (1) The signal must be a considerable distance away to be seen clearly.
- (2) The colour is of great importance, as the response of the eye is different for different colours.

We are familiar with the request of drivers to be given a long sight of a signal. The second factor involves the question of distance and intensity of the light. To get a distinct signal from a light at a distance, an intense beam is essential to give sufficient illumination for adequate eye response. The illumination available depends on the transmission properties of coloured signal glasses. It is not easy to get two coloured lights to show equally well. The more lights and the more colours on a signal the worse the problem becomes, and the more likelihood there is of a driver misreading a signal because the mechanism of the visual organs has not sufficient discriminatory powers under the conditions which obtain on the footplate of a high speed train.

Reaction Times

Visual signal reaction times for an ordinary subject are of the order of $\frac{1}{2}$ sec., and increase in length with his age. These laboratory tests refer to the time lag between the instant the signal is displayed and the subject's response shown by moving a finger after a number of trial experiments, i.e., he has practised continually immediately before the experiment begins. A driver reading signals is not in such a favourable state. His reaction to a visual signal will be longer. Probably a couple of seconds might elapse before he would take action on seeing a caution

* Abridgment of paper by A. W. Woodbridge, M.Sc. read before the Institution of Railway Signal Engineers, on October 5.

signal. The more complex a signal aspect the longer will be his reaction time.

Three important factors in very high speed running are:—

(1) Some time must be allowed for a visual signal to be recognised as such.

(2) In addition, a certain minimum time, say three seconds, must be allowed before the driver is even in position to take any action; for instance, to apply his brakes. (At 120 m.p.h. three seconds represent about 180 yd.)

(3) A simple visual signal is better than a complex one. For the signal at which braking is to commence a single yellow light is probably the best, since a given lamp will give a more intense beam of yellow light than of any other colour. If the signal is made flashing, as seen in Sweden, the stimulus to the eye will be greater.

For very high speed trains a sighting allowance of, say, 20 sec. would not appear excessive, allowing for observation and action by the driver, for the brake apparatus to act, and a small margin. This would represent a distance of about 1,200 yd. at 120 m.p.h. It is becoming more and more apparent that visual signalling is reaching its limit, and a system of A.T.C. would enable many valuable seconds to be cut off the sighting allowance if used to give a warning of approach to a distant signal and to apply the brakes; but some form of visual cab signal would be advantageous to a driver in addition to audible signals. The automatic application of the brakes would take place at a distance from the distant signal equivalent in time to that required for full braking pressure to be applied to the wheel rims and the time the brake valve was open. Actual distance would, of course, vary with speed, and to cover the very high speeds an additional automatic train control signal could be applied at, say, 1,200 yd. from the point at which braking is to begin, the apparatus being dependent on a governor driven from the driving wheels, applied to certain high-speed trains only.

Braking Effects

The effect of brakes depends on the adhesion between the wheel rim and rail; on the pressure applied to the block at any particular instant during braking; and also on the friction between the brake block and wheel tyre. So far as adhesion goes this cannot be varied within very wide limits, the application of sand making a difference of about 13 per cent. to it. The pressure which can be applied to the blocks, however, can, with suitable apparatus, be varied within very wide limits. It is believed that apparatus exists for applying pressure up to 300 per cent. of the weight on a wheel, with variable control of the pressure, as compared with present figures, ranging from about 50 to 100 per cent. In addition there are brake blocks giving about 40 per cent. greater friction than cast-iron ones. Locomotive engineers say that at speeds in the neighbourhood of 90 m.p.h. some considerable time elapses before the brakes begin to act, even when applied at the greatest available pressure, due probably to the fact that the higher the speed the longer it takes to make any appreciable reduction.

Braking distances from the distant to stop signal vary at present from about 1,400 to 2,300 yd. for 100-m.p.h. trains. It would be interesting if locomotive engineers would give information on their methods of determining these distances. Are they obtained empirically or by experiment? What factor of safety is employed?

One is at a loss to explain the great difference between the actual distance in which a train can be stopped and that asked for by the locomotive department between the distant and stop signal, seeing that very great sighting distances are usually asked for as well.

A recent formula shows that at high speeds the braking curve is very nearly a straight line, and thus the braking

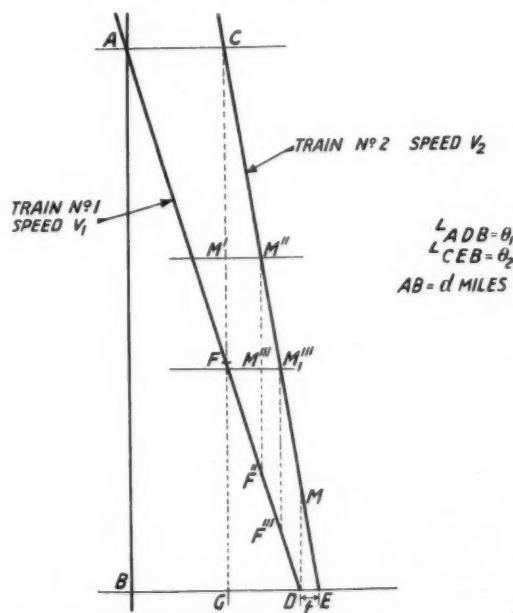
distance is almost proportional to the speed, and not to the square of the speed, as is usually assumed. This includes natural resistances, which are greater the higher the speed.

Unchecked Running of a Train

While the stopping of a train is of very great importance, we have to keep in mind the effect of the signalling system on through running. We have already dealt with three of these. The overlap, the braking distance, and the sighting distance together total something like two miles under existing conditions for trains running at about 100 m.p.h.

Train length may here be considered to be that of an ordinary express train, about 350 yd. In comparison with the other distances this will not have a great effect on ordinary main line capacity, it is, however, important in dense traffic areas. There remain the block section and operating distance.

To give a sufficient margin the former is today effectively of the order of ten miles for either a very high speed special train or a fast partly braked freight train. The operating department thus loses the effective use of a number of block sections. To all intents and purposes the signals in the high-speed block section are ignored by these special trains, and only the distant signal and home signal at the entry to the high speed block section are effective. That this practice should have to be adopted is very unfortunate. Not only does it reduce earning capacity, but it is a practical statement that the fixed signalling systems are too inflexible for intensive high-speed running. Multi-aspect fixed signalling will not help the problem at all, since the high-speed trains must have an unchecked run, and are therefore scheduled with the track specially cleared ahead. The problem is to find the distance on a level road which a train must



travel before another must start so as to run unchecked. Fixed signalling may be ignored for the purposes of the problem, also the effect of acceleration, the length of line being considered great in comparison with the distance required to get up to maximum speed.

Suppose AB (see diagram) is any section of line, say, d miles long. AD represents a time distance curve for one train starting from A and stopping at B. CE repre-

sents another, but faster, train also starting from A and stopping at B. These two trains are to run as close together as possible, but the first, or slower, is to give no check to the second, which must therefore arrive at B a time t after the first, where t represents the time for the first to clear B, and the signals be cleared for the second:—

$$\text{Let speed of first train be } v_1 = \tan \theta_1 = \frac{d}{t_1}$$

$$\text{Let speed of second train be } v_2 = \tan \theta_2 = \frac{d}{t_2}$$

$$\text{Also } BD = t_1, \text{ and } GE = t_2.$$

The second train must start a time BG after the first.
 $BG = BD - GD = BD - (GE - DE)$

$$= t_1 - (t_2 - t) = \frac{d}{v_1} - \frac{d}{v_2} + t$$

$$= d \left(\frac{1}{v_1} - \frac{1}{v_2} \right) + t$$

The first train is therefore a distance CF from A when the second train starts.

$$CF = v_1 \left(d \left(\frac{1}{v_1} - \frac{1}{v_2} \right) + t \right)$$

$$= d + v_1 t - d \frac{v_1}{v_2}$$

$$= d - v_1 (t_2 - t).$$

This expression will give the minimum distance the first train must travel before the second enters the section.

Other considerations will show that the signalling must be designed to give an uninterrupted display of clear signals between C and M, but we cannot get a complete sequence of long block sections, each of the same length, throughout the line and comply with the conditions of minimum spacing for unchecked running, nor is it necessary. Some graduation of the block sections is required. The first (with clearing point, &c.) to be clear must be CF and the last DM. All the intermediate sections may gradually diminish from CF to DM and their values can be determined from the diagram.

Assuming equal times t for each section, F is the clearing point for the starting signal at C, M' is the point corresponding to the position for sighting the braking signal, and FM' = DM. When the second train reaches M' it must receive a clear signal so that if we draw M' M'' parallel to BE and then drop a perpendicular on to BE from M'', this will give a point F'' which is the clearing point for the second train when at M'', and so on. We must therefore have some form of signal at C, M', M'', M. Some slight adjustments might make the existing fixed signals correspond with the clearing points F, F''. The form or colour aspect to be adopted at these positions depends on the existing signalling. If cab signalling were adopted for the special fast trains, such a diagram would give the positions for the track apparatus. Some difficulties would no doubt arise if a brake application were made at some intermediate cab signal inductor. How would a driver have to act in regard to the semaphore or light signals after receiving a braking signal on the A.T.C. apparatus? Presumably he would have to run at some predetermined speed, say v_1 in the diagram, and read and act on the semaphore or light signals until receiving a clear A.T.C. signal again, after which he would accelerate to his high speed v_2 . It must be remembered that under present conditions the driver of a very high speed train always sees his signals clear and is checked only in rare cases.

Operating Time

If it were possible to reduce to zero the time signalling apparatus takes to work, we should go a long way

towards solving difficulties which arise in practice. For example, numbers of failures do occur by signalmen beating electric locks, for all that might be said to the contrary; high speed vehicles beat the track circuit, and so on. Whatever form of signalling is adopted, time of operation is important. Manual block telegraph with mechanical signal operation is the slowest method of signalling and has very many disadvantages, both from the engineering and traffic point of view, but it is positive in action, and established practice. Can we afford to retain such a system under high speed dense traffic working conditions, when it may take up to a half a minute to give a clear distant signal? For a slow heavy goods train the time taken to clear signals is also a very vital factor, since a check to such a train has a great effect on its running time.

Other systems of signalling depend mainly on track circuits and a great increase in the speed of operation is obtained. With light cars, however, there is always the problem of track circuit shunting; this becomes especially important through interlockings where track circuits may be short. It is possible to envisage a short track circuit with a highly inductive relay failing to open its contacts because the speed at which a light car runs over the circuit is such that, although a good shunt might be obtained with it stationary or running comparatively slowly, the relay has no time to drop before the track circuit is cleared again. Under these conditions attention will have to be focussed on the design of much quicker acting apparatus than that in use today, in order to get positive operation.

"Station Limits"

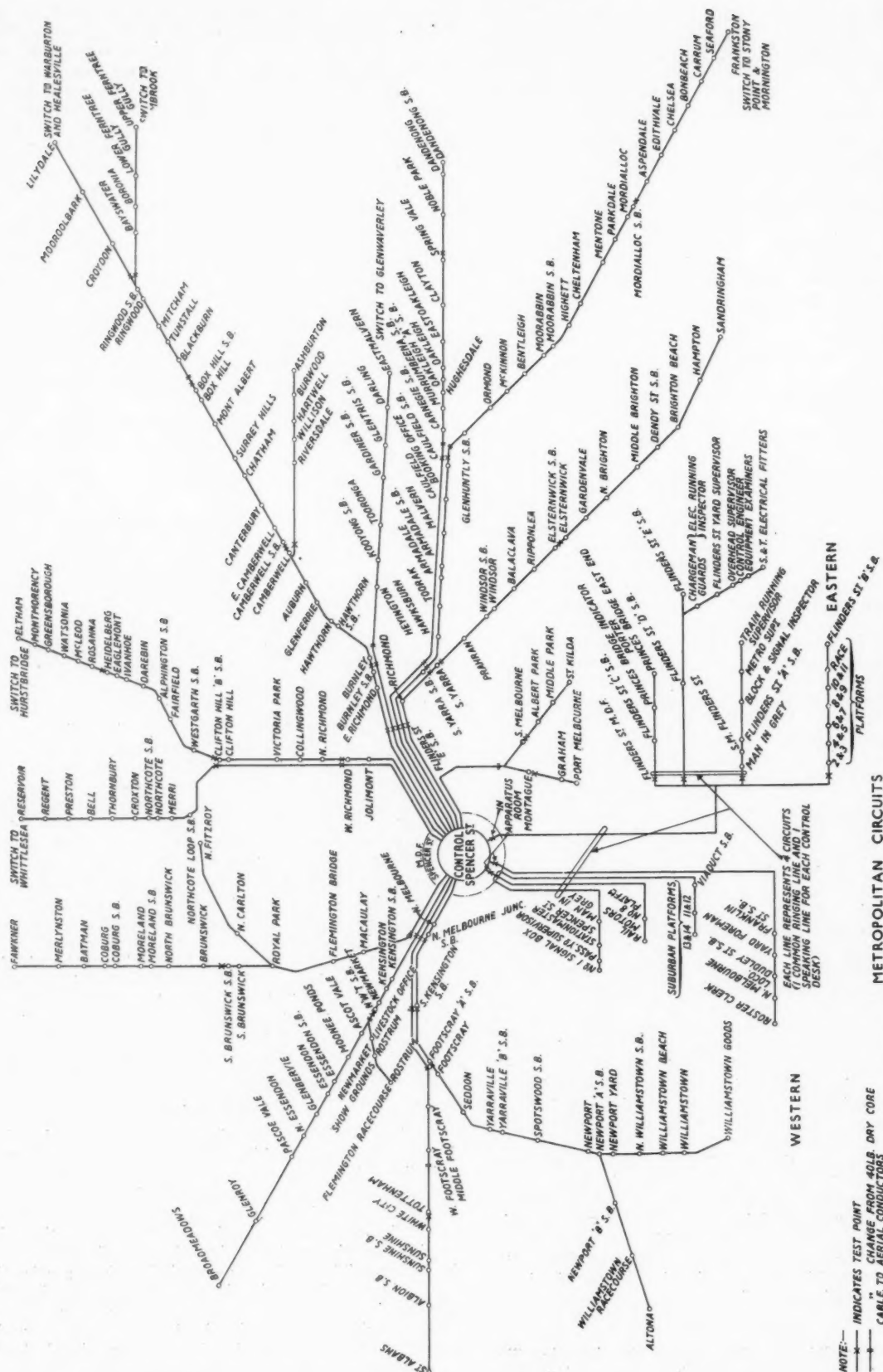
The difficulties of train operation in ordinary mechanical signalling territory where dense and fast traffic is to be allowed for are often due to bad spacing of the individual block sections. Intermediate block signals have assisted in some cases, but immediately insufficient distances between distant and stop signal occur various expediences such as block regulation 4a, distant signal indicator working, or controlling the distant in rear, have to be introduced. This, of course, will generally give a greater stopping distance than is really necessary, and invariably causes delay when none need be incurred. Such arrangements lead to the adoption of multiple-aspect signalling in many areas. But this does not make any difference to the fast running of a train; it only allows stopping trains to get closer together than would generally be the case in mechanical signalling territory, or reduces all trains to the same speed, that of the first train on the division. This happens with the line worked at its highest available capacity. This is apparent immediately from the diagram, since if trains numbers 1 and 2 are working as close together as possible, then the two train graphs would be parallel and would represent a speed equivalent to the slower train, the first.

Acceleration

Acceleration has not received so much attention from signal engineers as braking distance, presumably because main line railways have not yet had to work to very close headways on fast running lines. The introduction of electric traction for dense suburban practice has, of course, meant the careful examination of the acceleration, free running, coasting and stopping distances, in order to get the best possible results from capital outlay, acceleration and braking periods being large percentages of the point to point times.

The spacing of fixed signals depends on the running speed. If the same spacing is given for signals in the

(Continued at foot of page 612)



TRAFFIC CONTROL ON THE SUBURBAN LINES OF THE VICTORIAN RAILWAYS

Extension of selective telephone equipment

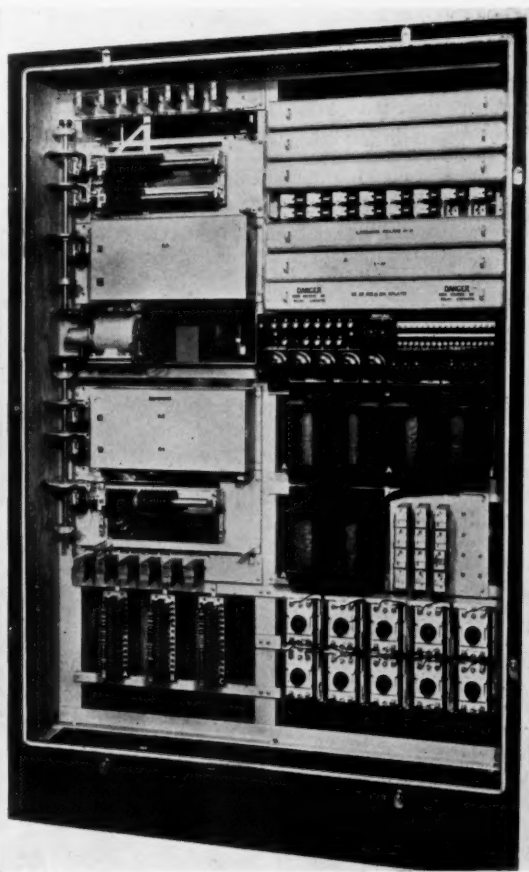
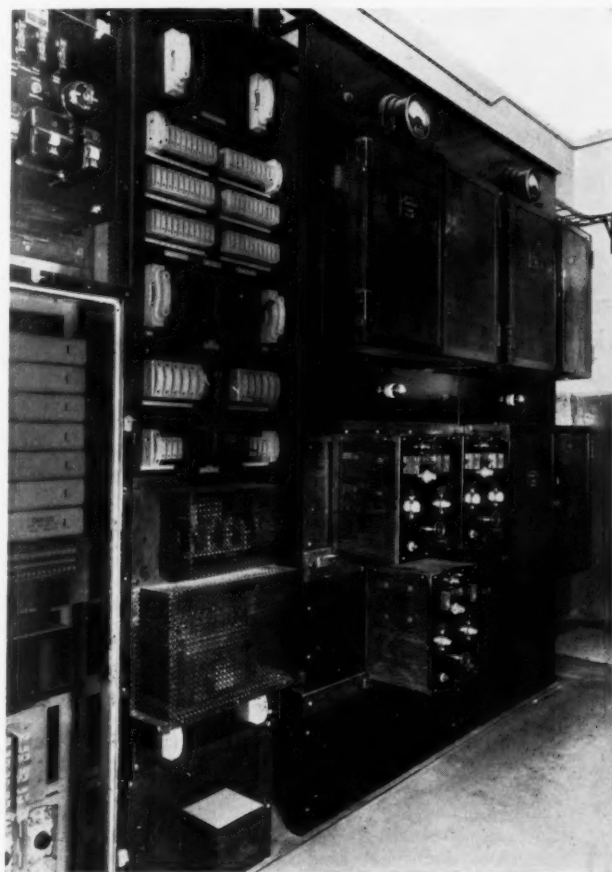
TRAFFIC control has been in use on Victorian Railways country lines for many years, and its extension to the suburban area is intended not only to cater for suburban traffic, but to be a complementary system to the equipment already in service. At the Spencer Street administrative offices both country and suburban train control desks are accommodated in a group of sound-proof, air-conditioned rooms, access to which is through the office of the Chief Train Despatcher. By means of a switch box and loudspeaking equipment he can supervise the operation of any of the control desks, but though in direct communication with the train despatchers he is not able to call wayside stations direct.

Layout of Circuits

The layout of the suburban train control systems is shown in the diagram opposite. It will be observed that at the extremities of some of the suburban lines provision is made for the train despatcher to call through to code ringing party lines. This is achieved through a latching

relay switch combination at the selector terminal stations. In addition to the suburban lines, to which 200 stations are connected, an omnibus line, or "metropolitan circuit," running round the Melbourne and Flinders Street railway yards, and also special circuits to the Control Engineer—who is in charge of power distribution to the suburban electric train service—are terminated on every desk. Twelve suburban lines are so terminated, five being normally connected to one desk and seven to another, with all lines connected to the third. Switching facilities enable lines to be transferred, permitting trains to be controlled from one, two, or three desks, depending on the traffic.

To make the keys for the various lines readily distinguishable, each group has a distinctive colouring for the key levers. Translucent designation plates directly above the keys are illuminated from behind when the particular lines are connected to the desk, giving a clear and comprehensive indication of what lines are connected. The metropolitan line being common to all desks, its



(Left) Apparatus room, showing switching unit on left, power panel, and rectifiers. (Right) Near view of switching unit

designation plate is illuminated on all three at the same time. A "busy" lamp associated with that line on each desk shows when it is being used by another despatcher.

Working of the Apparatus

The earlier types of control desks had a W.E. 60A type key for each wayside station, the calling mechanism being a 60A selector apparatus case with appropriate power plant. From the train despatcher's viewpoint the operation of the suburban desks is simplified, inasmuch as when calling a station it is only necessary to depress the appropriate key, the code being sent out automatically by machine sender which, together with amplifiers, rectifiers, and power equipment, is in an apparatus room a short distance away. When a key is depressed the searching mechanism of the switching unit finds the calling line, which is then connected to the sending mechanism. Regular, perfect impulses, which are then continuously sent out by the sender, are interrupted by shading cams, arranged to give a regular code corresponding to the selector at the wayside station called. A green "code sending" lamp glows as an indication to the despatcher that the machine sending mechanism is functioning correctly. When the code has been sent and the desired station called, a white "code sent" lamp glows, upon which the despatcher restores the key to normal. In the event of a fault developing on any line, it may be isolated by a cut-off key whilst the despatcher is transacting business on the other lines. A faulty line is indicated by a "line fault" lamp.

Automatic telephone facilities give the despatcher access to the automatic exchange, through which he is in contact with the administrative offices. Selector equipment at wayside stations is the same as that used formerly (*i.e.*, 60 AP type), which responds to the code sent out



Train despatcher's desk

and causes the bell to ring. The called station replies on an ordinary magneto telephone and is heard on the loudspeaker on the control desk. The despatcher replies through a velocity microphone located in the face panel of the desk, immediately below the loudspeaker.

Should the regular power supply fail, provision is made for an automatic change over to an alternative emergency one, for lighting, electric clocks, amplifiers, and power equipment associated with the switching unit.

The control desks were manufactured in Sydney, N.S.W., by Standard Telephones & Cables Pty. Ltd., which was entrusted with the supply of the whole of the apparatus.

Speed in Relation to Signalling

(Concluded from page 607)

section during which acceleration and free running are taking place there will be unnecessary delays. The closer spacing adopted for trains starting from rest at through stations will not enable the free running train to be given sufficient braking distance. The result is usually inability to increase the train service. At termini the problem is not so difficult. All trains start from rest. Multiple-aspect signalling has then a very useful function, since the spacing of the signals can be varied in accordance with the acceleration curves of the trains. A second train, starting from rest, will get a succession of clear signals so spaced that sufficient braking distance can be given if the first is stopped. If the second happens to be a high-speed train it cannot generally be started without the line being clear for a considerable distance ahead. A similar method for obtaining the positions of the A.T.C. inductors, if these were employed for the high speed trains, could be used as described before. In this case, however, the braking distances required at each position would vary in accordance with the speed attained at the different points along the line.

Conclusion

The limitations now imposed on the working of trains by the introduction of speed for a few individual trains

far in excess of the average fast train running today has undoubtedly shown many weaknesses in the signalling methods in general use. Not the least of these is the fact that many of the proposed systems are in direct conflict with much scientific knowledge regarding dynamics and psychology. In addition they are becoming more complicated and thus require more knowledge and care on the part of all concerned.

The suggestion of applying A.T.C. to the few special high speed trains is a possible method of approach to the solution of the problem. Difficulties will, however, be encountered when all trains are equipped for automatic train control unless a different system is adopted for the high-speed trains than for the ordinary trains. More than this will have to be done before a full solution can be obtained. Automatic braking will have to be improved and braking distances considerably reduced. This in itself is not sufficient, as train headway is dependent today on what may be called "static" signalling. A possible method of decreasing the headway would be some form of cab signalling, dependent on the relative speeds of following trains, such that trains could always run with just sufficient braking distance between them. In other words, the block sections would move with the trains.

RAYNERS LANE AND THE RAILWAY

Expansion of the area consequent upon improved railway facilities

A FEW years ago Rayners Lane was a small station on the Metropolitan branch line between Harrow-on-the-Hill and Uxbridge. The accommodation it offered may be judged from the photograph reproduced below, which shows a structure rather like a cabby's shelter, perched on the side of the bridge over the railway. This was the booking office, which did duty for over 30 years. The herald of the great

change that was to come to Rayners Lane appeared in 1932, when Piccadilly Line trains were projected from Hammersmith out to South Harrow and Uxbridge. This extension, in conjunction with the modernisation of the stations up to South Harrow, brought after it a great tide of building, which within two or three years spread and began to make rapid inroads into the Rayners Lane area. Some idea of the astonishing activity in the erection of houses, shops, and flats may be obtained from the two photographs reproduced above. From being a mere rural backwater "Rayners Lane," now the name by which the area within the Harrow Urban District which contains the site of the old lane is generally known, has become the address of one of London's most popular dormitory areas, with residents' associations, a luxury cinema, bus services

—in fact all the amenities the modern suburban dweller expects.

No less remarkable than the development of the district itself has been the increase in the number of passengers using Rayners Lane station. In seven years this has risen from 22,000 to 4,000,000 a year. Naturally the old station could not cope with this quantity and the London Passenger Transport Board decided to rebuild it to conform with the other Piccadilly Line stations in the district. The first step—the result of joint arrangements with the Middlesex County Council—was the provision of a new road bridge spanning the tracks. On August 8 last, this station, completed at a cost of £31,000, was opened. Of the most up-to-date design, it sets an admirable criterion in architecture for the new suburb.



Left : Rayners Lane in 1928. Right : Rayners Lane today, looking towards the same point



(Above) The booking office of the old Metropolitan Railway station at Rayners Lane



(Right) The new London Transport station

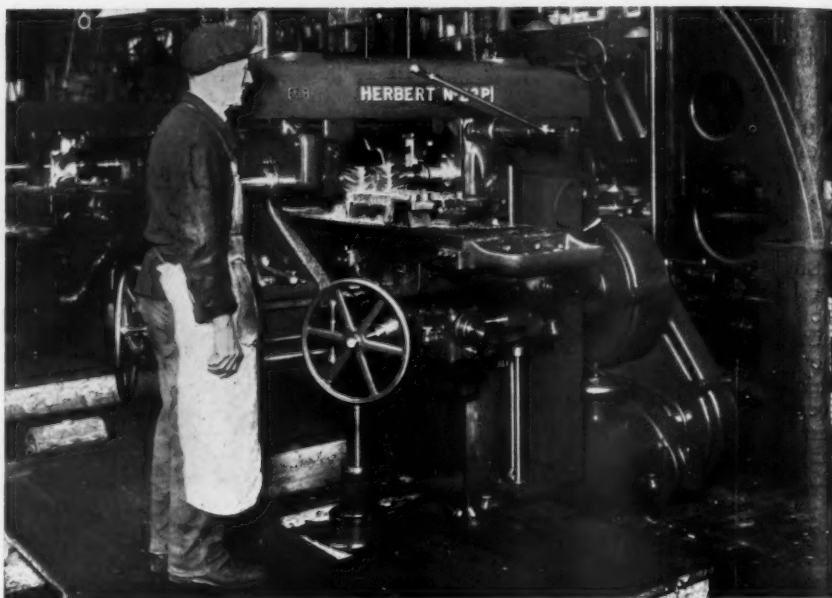
MACHINING LOCOMOTIVE DETAILS AT SWINDON WORKS—I

Herbert milling machine with self-contained drive from 20-h.p. motor

FOR machining certain locomotive components at Swindon works the Great Western Railway has installed, among others, Herbert milling machines of the type illustrated; the work consists of milling rocking shaft bracket covers in cast-iron, the two joint faces being machined.

The machine has a self-contained drive by Texrope from a 20-h.p. motor, 400 volts a.c. 3-phase. The spindle is of case-hardened nickel chrome steel running in specially made precision type roller-bearings. It is bored through and provided with a drawbolt and adapter for taking arbors, cutters, and collets with No. 11 B. & S. taper shanks. The driving box has 16 spindle speeds, from 16.5 to 427 r.p.m.

Eighteen automatic feeds ranging from $\frac{1}{8}$ in. to $22\frac{1}{2}$ in. per min. are provided to the longitudinal, cross, and vertical motions of the table. The lengths of travel are 48 in., 18 in., and 22 in. respectively. Automatic quick power traverse of 150 in. per min., independent of the automatic feed, is provided to the longitudinal motion of the table. The size of the table is 5 ft. 8 in. by 1 ft. 5 in.

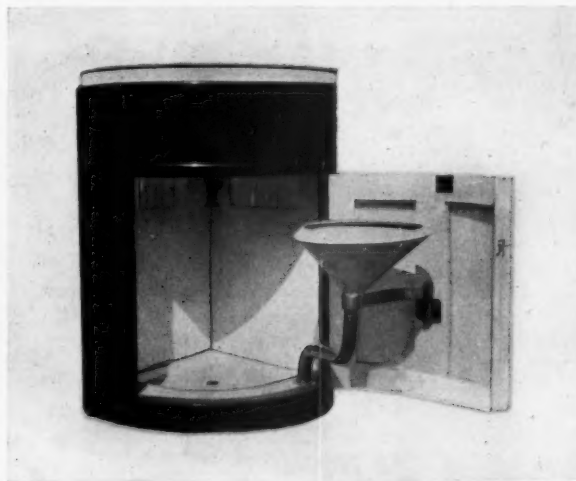


Herbert milling machine at Swindon, with self-contained drive

We are indebted to Mr. C. B. Collett, O.B.E., Chief Mechanical Engineer, Great Western Railway, for allowing us to examine this milling machine in service, and photographing it at Swindon works.

A HYGIENIC LAVATORY CABINET

We have received particulars from Mr. R. Buchanan Reith, of Newcastle, of an improved type of lavatory cabinet suitable for use in sleeping cars in which the use of ordinary urinary appliances is frequently objected to on hygienic grounds. As may be seen from the illustration, in the inventor's patented appliance a hopper-head urinal is provided bracketed to the door of the cabinet and connected to a pipe, which discharges contents through the carriage floor on to the permanent way in the usual manner. The whole arrangement—which incidentally can be completely dismantled in about two seconds—is rotatable at three points so that when the door of the cabinet is closed the hopper mouth is brought directly underneath the waste outlet of the wash-hand basin. By this means waste water from the basin is discharged on to the permanent way and of course serves to flush the urinal in its passage. To make the flushing process more efficacious, a perforated rose is fitted which distributes the water over the internal surface of the hopper. To prevent water being discharged when the urinal is not in the stowed-away position, a simple yet fool-proof valve is fitted. The invention is equally applicable for use on board ship, in caravans, long-distance buses, and in places where the usual sanitary arrangements are not available.



Design of toilet cabinet as applicable to use in compartments in railway sleeping carriages

THE FIRST L.N.E.R. CHAIRMAN

An account of the career of Mr. William Whitelaw, and an appreciation

MR WILLIAM WHITELAW at the meeting of the board of the London & North Eastern Railway Company last Friday formally resigned the chairmanship and also his seat on the board. His intention of taking this step had been notified some weeks earlier, as announced in THE RAILWAY GAZETTE of July 29 last, although the actual date at which the change was to become operative had not then been fixed. Born in 1868, the third son of the late Mr. Alexander Whitelaw, of Gartshore, Dumbartonshire, Mr. William Whitelaw was educated at Harrow and at Trinity College, Cambridge, taking his B.A. degree in 1890. He had a short Parliamentary experience as Member for Perth City 1892-95. He joined the board of the former Highland Railway Company in October, 1898, at the age of 31, and was elected Deputy-Chairman in April, 1900, succeeding shortly afterwards to the chairmanship, when in view of his increasing responsibilities as Chairman of the former North British Railway Company, he resigned his chairmanship of the Highland Railway, although he remained on the board of that company until 1918. During his tenure of office he succeeded in placing the undertaking on a sound financial basis. He had become a Director of the North British Railway in 1908, Deputy-Chairman in 1910, and Chairman in 1912, a position which he retained until the end of 1922. On the formation in 1923 of the London & North Eastern Railway Company, of which the North British Railway was a constituent, Mr. Whitelaw acceded to the unanimous wish of his colleagues that he should accept the chairmanship of the new undertaking, which he has now guided for over 15 years. From time to time he has also been President of the Railway Benevolent Institution and of the Railway Convalescent Homes, and for the year 1934-35 he was President of the Institute of Transport. On May 21, 1937, he was presented at Edinburgh with a portrait of himself painted by Mr. W. R. Brealey in recognition of his services to the Church of Scotland.

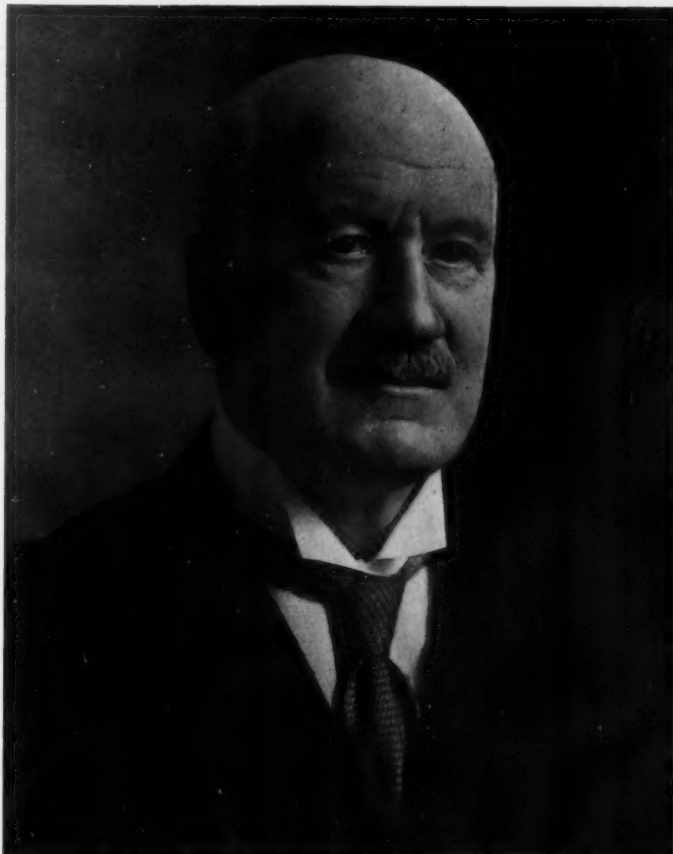
The following appreciation of Mr. Whitelaw by Colonel the Hon. A. C. Murray, a Director of the L.N.E.R., appears in the current number of the *London & North Eastern Railway Magazine*:—

"On land, at sea, beneath the earth's surface, and in the air, the toilers at the wheels of British industry pursue their daily tasks.

Fortunate that body of toilers, be it large or small, that has the thousandth man to guide its footsteps. Fortune indeed, in all her trapplings, attended the London & North Eastern Railway Company when, at its inception in 1922, 'the thousandth man' in William Whitelaw was chosen to take the chair. But the choice, let it be noted, was none of his seeking. Far otherwise lay his inclinations. Long years of arduous railway work — interpolated with a period of membership of the House of Commons — stretched out behind him. The marks of his knowledge, assiduity and resourcefulness had imprinted themselves on the Highland and North British Railway Companies, of both of which he had occupied the chair. The heart that was in his work had its resting place in Scottish railways in his native land. The old North British Company, which he had led so creditably, was to

be swallowed up in the new group—why should he follow it to London? Surely this was the moment to 'cut the painter'; to allow himself more time for his activities in connection with the General Assembly of the Church of Scotland, and for other work and duties; to enjoy greater leisure, and to live at home. But the finger of fate pointed southwards. Yielding, ultimately, to the persuasion of the directors of the amalgamated company, he chose the rougher path and assumed the exacting burdens of the office which now, to our sorrow, owing to increased pressure of private affairs, he has laid down.

"In glancing back over life it is seldom that the difficulties we have had to face in the past seem to be of the proportions that they assumed at the time of their occurrence. 'A large number of our worries in life,'



Drummond Young

Mr. William Whitelaw

[Edinburgh]

Chairman, London & North Eastern Railway Company,
1923-1938

said Lord Grey to me once, in a similar sense, 'have never happened!' But, whatever the gloss due to the passage of time, the difficulties and problems, the worries and complications, great and small, which encompassed us, have had to be met and surmounted, and on the manner of their surmounting has depended future success or failure for the enterprise out of which they arose. No one, in whatever position, who has been associated with the London & North Eastern Company for any length of time, can have failed to appreciate the magnitude and variety of the problems that beset, on every side, this great new undertaking. No one, similarly, can have failed to appreciate the great qualities displayed by Mr. Whitelaw in leading—in co-operation with his colleagues and highly talented and competent management and staff—the multitudinous activities, customs and idiosyncrasies of the seven constituent companies into the channel and spirit of an ordered and unified whole.

"Mr. Whitelaw's protracted and intimate association with all phases of railway work and life stood him in good stead. But knowledge, concentration and strenuous work form only a part of the qualifications necessary for satisfactory and skilful leadership. Senior wranglers have been—before they 'wrangled'!—strenuous workers, and possess knowledge of a superlative and terrifying nature! But not necessarily are they all leaders of men, or moulders of human energies! By Mr. Whitelaw the act of leading and of directing has been performed with knowledge and tact, judgment and courage, vision and optimism, and with infinite charm and humour, and cheeriness of spirit. His direction of the objectives which, from earliest days, were set down for achievement, namely, the attainment and assimilation of the highest possible standard of efficiency and progress, at the least possible cost, in all the company's activities throughout the system, has been attended by demonstrable success. Efficiency,

economy, progressive methods of maintenance and operation, and goodwill and *esprit de corps*, have been inscribed on the banner under which he and his skilled and enthusiastic band of lieutenants have marched forward.

"No account in any detail is here possible of the varied work accomplished, and of the beneficial changes wrought, despite the burdensome handicap through a number of years of unprecedentedly difficult and anxious times in the economic and financial spheres. But with truth it may be said that the programmes projected in every direction and the many new developments initiated have been cast in foresighted mould, and well and truly carried through. Complex problems of co-ordination have been met and ably solved—varying customs, methods, practices, and even, it may be ventured, human natures have adapted themselves to the best in each—unification has kept step with progress, and progress with economy. The mighty enterprise forges ahead; 'the thousandth man,' whose chief care it has been to direct, in its early life, its energies and its fortunes, may survey with justifiable pride the fruits of the task to which, sixteen years ago, he put his hand. And those who have happily been associated with him, in greater or humbler positions, will always remember that to their play as to their work Mr. Whitelaw brought unceasing interest and co-operation. No effort was ever too great, no journey ever too tiring or too far, if, by his presence at their recreational functions he could add to their pleasure and enjoyment. All will miss him—but in the hearts of all he will be enshrined. And in his retirement, where our thoughts will follow him, we would wish him to bear in memory that his example will continuously sustain and encourage us to tread with vision the path along which he has led us for so many years. One and all we shall remember his wise, able, farseeing and cheery guidance; his interest in all our activities; his never-failing friendship; and above all, with affection, himself."—A.C.M.



A snapshot of Mr. Whitelaw in 1920 on an inspection of the West Highland Line

At that time Mr. Whitelaw was Chairman of the North British Railway Company

RAILWAY NEWS SECTION

PERSONAL

THE L.N.E.R. CHAIRMANSHIP

The London & North Eastern Railway Company announces that Mr. William Whitelaw has resigned both the chairmanship and his seat on the board of the company, and that his resignation has been accepted with the deepest regret.

Sir Ronald W. Matthews has been elected Chairman of the company in succession to Mr. William Whitelaw.

SIR RONALD MATTHEWS

Sir Ronald Wilfred Matthews, who has been appointed Chairman of the London & North Eastern Railway Company, in succession to Mr. William Whitelaw, joined the board in 1929. He subsequently became Chairman of the Stores Committee, and has been Chairman of the Southern Area board.

The son of Mr. Wilfred A. Matthews, he was born on June 25, 1885. Educated at Eton and subsequently in Switzerland and Germany, he in due course joined the family business of Turton Brothers & Matthews Ltd., established in the early 'sixties. Of this firm he is now Vice-Chairman and Joint Managing Director.

During the great war he served in Belgium and France with the 5th (King's Own) Yorkshire Light Infantry, finishing with the rank of Captain. In 1922 he was elected Master Cutler of Sheffield at the age of 37, and was the youngest holder of that office in the history of the Company. In 1929-30 he was President of the Sheffield Chamber of Commerce, and is the Chairman and Founder of the Sheffield Building Society. He was elected a Justice of the Peace for the City of Sheffield in 1924, and is also a Magistrate for the West Riding of Yorkshire.

Sir Ronald is Chairman of the Board of Management of the Sheffield Royal Infirmary, Deputy Chairman of the Sheffield Voluntary Hospitals Million Pound Appeal Fund, Chairman of the Finance Committee of the Sheffield Hospitals Council, Chairman of the Sheffield Conservative and Unionist Federation, and of the Don Valley Conservative and Unionist Association. He is also a Member of the Council of the University of Sheffield. This year he was elected Deputy President of the Association of British Chambers of Commerce. He was

knighted in 1934 for political and public services and is a member of the Order of St. John of Jerusalem.

Other business interests of Sir Ronald Matthews include the chairmanship of the Brush Electrical Engineering Co. Ltd., vice-chairmanship of General Refractories Limited, and a directorship of its subsidiary concerns. He is also a Director of J. & G. Wells Limited, Redifusion Limited, Sheffield & South



[Ethel Eadon]

[Sheffield]

Sir Ronald Wilfred Matthews

Appointed Chairman of the London & North Eastern Railway Company in succession to Mr. William Whitelaw, who retired on September 30

Yorkshire Navigation Company, and a local Director of the National Provincial Bank, and Vice-Consul for Czechoslovakia for Sheffield, Derbyshire, and Nottinghamshire.

INSTITUTION OF CIVIL ENGINEERS

The following are among the associate members of the Institution of Civil Engineers who have been transferred to the class of full Member:—

Mr. J. M. Greathead, Chief Civil Engineer, South African Railways and Harbours.

Mr. H. H. Mardon, Construction Manager, British Oxygen Co. Ltd.

Mr. H. E. Whitehouse, Superintending Engineer, Nyasaland Railways.

INSTITUTE OF TRANSPORT PREMIUM AWARDS, 1937-38

The council of the institute has made the following premium awards in respect of the session 1937-38:—

Railway Operating Medals

(Donor: The Railway Companies Association.)

(i) To Mr. V. M. Barrington-Ward, D.S.O. (formerly Member of Council), Superintendent (Western Section), Southern Area, L.N.E.R., for his paper on "Modern developments in railway operating practice."

(ii) To Mr. G. Mills (Member of Council), Divisional General Manager, Scottish Area, L.N.E.R., for his paper on "The price of transport."

Road Transport Medal

(Donor: The Commercial Motor Users Association.)

To Mr. C. T. Brunner, of Shell-Mex & B.P. Ltd., for his paper on "Rates agreements and rates regulation in the road haulage industry."

Inland Water Transport Medal

(Donor: The Canal Association.)

To Mr. G. Cadbury (Member), Managing Director, Cadbury Bros. Ltd., for his paper on "The economic future of canals."

Dock and Harbour Silver Medal

(Donor: The Dock and Harbour Authorities Association.)

To Mr. G. Wilson (Associate Member), of the Port of Bristol Authority, for his contribution on "Costing in relation to port operation."

Coastwise Shipping Medal

(Donor: Sir Alfred Read.)

To Mr. L. G. Hudson, of Wm. Cory & Son Ltd., for his contribution on "A review of the London collier trade."

Institute Graduate Medal

To Mr. A. Stone, of Leeds City Transport Department, for his contribution on "Road passenger transport: relationship between municipal and private enterprise."

"Modern Transport" Premium

To Mr. H. G. R. Stevenson (Graduate), of the London Passenger Transport Board, for his contribution on "Training of staff for public service vehicles."

Mr. W. P. Deakin, whose retirement from the post of Chief Mechanical Engineer, Central Argentine Railway, was announced in our issue of September 16, entered the service of that company in April, 1904, as Engineer

in charge of grain elevators and shipping appliances. In 1905, Mr. Deakin's services were lent to the Argentine Ministry of Public Works in connection with a scheme for using part of the Military Port Docks at Bahia Blanca for the storage of cereals and the discharge and storage of coal from ocean steamers. In 1905-06, his services were placed at the disposal of the Buenos Ayres Great Southern Railway for the design and execution of extensive modifications to the electric grain conveyors at Ingeniero White, an important and intricate work which he carried to a successful conclusion. In 1911, he was responsible, under the direction of the Chief Mechanical Engineer of the Central Argentine for the execution of a coal handling scheme at the river port of Villa Constitución by means of large grab-bucket transporter cranes. Mr. Deakin was appointed Chief



Mr. W. P. Deakin

Chief Mechanical Engineer, Central Argentine Railway, 1925-38

Draughtsman, Chief Mechanical Engineer's Department, in October, 1914; Locomotive Works Manager in June, 1917; and Chief Mechanical Engineer in October, 1925. He was one of the four members of the Engineering Commission appointed in 1923 to study and report to the Argentine State Railways Administration on the conditions of the Mechanical and Traction Departments of the Argentine Central Northern (State) Line. Mr. Deakin has been responsible for many important developments in the Central Argentine locomotive, coaching, and wagon stock, including the new air-conditioned *train-de-luxe*, El Cordobés. The introduction of diesel traction is another innovation which has added to Mr. Deakin's responsibilities.

Mr. W. F. H. van Rijckevorsel, whose appointment as a Vice-President in the new Executive Committee of the Netherlands Railways was announced

last week, was born at Pasoeroean in Netherland India in 1880 and qualified as a civil engineer in 1902. On November 1 in that year he entered the service of the Holland Railway Company at Hilversum. After occupying vari-



Mr. W. F. H. van Rijckevorsel

Appointed Vice-President, Netherlands Railways



Mr. W. Hupkes

Appointed Vice-President, Netherlands Railways

ous posts he was appointed Chief of the Goods Department. On October 1, 1931, he became Chief of the Traffic Department of the Netherlands Railways, and on September 1, 1935, the commercial side of the work was also placed under his care. During his term of office the running arrangements and user of vehicles were reorganised, while the goods traffic was so speeded up by the introduction of fast goods trains that anything handed in of an evening was delivered the next morning.

Mr. W. Hupkes, who, as announced last week, has been appointed a Vice-President in the Netherlands Railways Executive Committee, was born at Arnhem in 1880 and took a degree as mechanical engineer in 1904 at Delft. In September of that year he entered the service of the Holland Railway Company, and, after holding various positions, was appointed Chief Rolling Stock Engineer on January 1, 1927; on May 21, 1928, the workshops came under his charge. On September 1, 1934, he became Chief Mechanical Engineer, locomotives then coming under his care also. Under Mr. Hupkes's direction the rolling stock of the Netherlands Railways has undergone considerable improvement. Not only did diesel-electric trains make their appearance in 1934, but electrification has been extended. The electrification of the central part of the system on May 15 last will be re-



Mr. S. S. Millington

Late Comptroller of Stores, New Zealand Government Railways

called, with electric trains able to run at 120 km.p.h. (74.5 m.p.h.). The stock used on steam trains has also been much improved, and tests are now being made with streamlined steam locomotives.

Mr. S. S. Millington, whose retirement from the post of Comptroller of Stores, New Zealand Government Railways, after 40 years' service, was recorded in our issue of September 16, joined the Railway Department on February 28, 1898, as a cadet in the General Manager's Office at Wellington. In 1900 he served in the Traffic Department in the Hawke's Bay district, and in 1901 returned to the General Manager's staff. In July, 1903, he was appointed confidential clerk to the Stores Manager, and thereafter remained in the Stores Branch of the railway service except for a short period when he was in charge of the Outdoor Advertising Branch. Mr. Millington

has had a wide experience in connection with the purchasing of railway requirements and of State purchases generally. During his period with the Railway Department he had experience of the purchasing activities of the department in the four main centres, and was in close contact with the merchants and New Zealand manufacturers throughout the Dominion. Mr. Millington was the Government nominee on the Road Transport Purchase Tribunal, and he also served on the Advisory Committee of the New Zealand Standards Institute. He was associated with the activities of the Stores Control Board, which arranges purchases for state departments other than the three largest purchasing departments, namely, the Railway Department, Public Works Department, and Post and Telegraph Department. The board was constituted in 1920, and Mr. Millington was the interim Secretary. Subsequently he was Chairman of the Purchasing Committee in Christchurch, and for the past three years has been Chairman of the Advisory Committee in Wellington.

INSTITUTION OF LOCOMOTIVE ENGINEERS

The following elections were made at a meeting of the Institution of Locomotive Engineers on September 28:—

Members

Mr. H. Ashton, Assistant Locomotive Superintendent, Southern Railways of Peru.

Mr. H. N. Brock, Divisional Transportation Superintendent, G.I.P.R.

Mr. L. S. Cave, Divisional Operating Officer, North Western Railway (India).

Mr. F. G. John, Mechanical Assistant to Chief Superintendent, Rhodesia Railways.

Mr. A. H. Nash, First Assistant to Loco. Works Superintendent, L.M.S.R., Derby.

Mr. C. R. Parker, Diesel Traction Engineer, Central Argentine Railway.

Mr. J. Smith, Chief Mechanical Engineer, Kowloon—Canton Railway.

Mr. A. Walker, District Loco. & Carriage Superintendent, B.B. & C.I.R.

Mr. D. S. MacGee, Works Superintendent, B.B. & C.I.R.

Transferred from Associate Member to Member

Mr. S. T. Clayton, District Loco. Superintendent, Bank Hall, L.M.S.R.

Mr. A. R. Loveridge, Assistant Loco. Superintendent, Tanganyika Government Railways.

Mr. R. A. Smeddle, Loco. Works Manager, Darlington, L.N.E.R.

Associates

Mr. R. A. Beckett, Beckett, Laycock & Watkinson Limited.

Mr. R. Gresley, Assistant General Manager, G. Stephenson & Co. Ltd.

Mr. J. W. Vaughan, Secretary and Solicitor to the Locomotive Manufacturers' Association.

Associate Members

Messrs. W. J. W. Collins, A. S. Corden, R. B. Gibson, G. Guthrie, L. Hayes, S. S. Iyengar, W. H. Stanier, T. Tao, A. Tonge, K. F. Townrow, E. J. Wilson.

Transferred from Graduate to Associate Member

Messrs. C. A. Ali, F. B. Clark, T. W. J. Moore, A. S. Parker, J. C. Spark, N. F. Stevens.

We record with deep regret the death on September 29 of Mr. Donald Menzies Smith, age 24, after an operation. Mr. Smith was for some years a member of the editorial staff of THE RAILWAY GAZETTE, and since June, 1937, had been on the business staff of our associated publication *Building*.

INTERNATIONAL CONGRESS OF SURVEYORS

Among British representatives at the Sixth International Congress of Surveyors, which is being held in Rome on October 9 and 10, will be Mr. W. H. Christy Clay, Estate Manager of the L.M.S.R. Mr. Christy Clay is attending as a representative of the Chartered Surveyors' Institution.

Mr. L. Wilson, General Manager of the Great Indian Peninsula Railway (who has been deputising for Sir Guthrie Russell, Chief Commissioner of Railways, Indian Railway Board, who has been on leave), is still seriously ill, but the latest report received is that he is now making slow progress towards recovery.

Mr. L. T. Stott, Acting Deputy General Manager (Commercial), Ceylon Government Railway, whose contract with the Railway Department expires on November 5, is leaving Ceylon on October 12 on return to England. Prior to his service in Ceylon, Mr. Stott had 30 years' experience on the Great Western Railway, joining it at the age of 15. He has wide knowledge of accounting, and was selected from a large number of applicants to fill the post of Chief Accountant of the C.G.R. in 1935.

We regret to record the death on October 4, in Montreal, of Lord Shaughnessy, K.C., a director of the Canadian Pacific Railway. He was a son of the first Lord Shaughnessy, who guided the C.P.R. through its greatest period of expansion. In addition to his C.P.R. and other business directorships, Lord Shaughnessy was a partner in the Montreal legal firm of Meredith, Macpherson, Hague & Holden, of which he became a partner in 1912. He took silk in 1920.

Mr. C. D. Hanna has joined the staff of the Crompton-West Traction Organisation at Chelmsford. Mr. Hanna has had a comprehensive association with railway traction, and was Assistant Chief Draughtsman in the Steam Locomotive Department of Sir W. G. Armstrong Whitworth & Co. (Engineers) Ltd., for nine years prior to his appointment as Chief Locomotive and Carriage Designer on the inception of that company's Diesel Traction Department in 1930. He has been responsible for evolving the design of the railcars,

powerhouses, and locomotives (shunting and passenger), built by Sir W. G. Armstrong Whitworth & Co. (Engineers) Ltd. during the last eight years, including units for home railways, Argentina, Brazil, India, Australia, and elsewhere. The Crompton-West Traction Organisation covers the combined activities of Crompton Parkinson Limited, and Allen West & Co. Ltd., and Mr. Hanna will be concerned with the preparation of complete vehicle designs for electric and diesel-electric locomotives and carriages for home and overseas railways.

FUNERAL OF MR. ERNEST TAYLOR

In the list of those attending the funeral of Mr. Ernest Taylor, the late Chief Accountant of the L.M.S.R. (on page 571 of last week's issue), we regret that owing to a clerical error, there were several omissions. Amongst those present, in addition to those given in our list, were: Mr. A. F. Bound, Signal and Telegraph Engineer, and Mr. S. J. Symes, Chief Stores Superintendent, L.M.S.R.; Mr. C. S. Louch, Accountant and Comptroller, London Passenger Transport Board; Mr. H. T. Forth, Assistant Accountant, Great Western Railway (also representing Mr. C. R. Dashwood, Chief Accountant); and Mr. H. C. Walton, Secretary of the Railway Benevolent Institution.

NEW CZECHOSLOVAK MINISTERS

The following were among the Ministers in General Sirovy's Czechoslovak Government formed on September 23:—

Trade and Industry: Dr. Jan Janáček. Railways: Dr. Jindřich Kamenický. Public Works: General Nosal.

General Nosal was head of the Fourth Section of the Ministry of National Defence from 1921 until the above appointment, and was one of the men responsible for building the Czechoslovak fortifications.

This Government resigned on October 4, and on its reconstitution, again with General Sirovy as Prime Minister, the above ministries were re-allocated as below:—

Trade and Industry: M. Karvas. Railways: General Caidas. Public Works: General Husarek.

Mr. A. Kershaw, Assoc.I.E.E., has been appointed Assistant Secretary—Administration, of the Institute of Welding. He took up his duties on October 1. Mr. Kershaw, who comes from the technical staff of the Butler Machine Tool Co. Ltd., was Educated at Dewsbury Wheelwright Grammar School and Leeds University, with early training in colliery, by-product, and chemical engineering. He served with the Yorkshire Regiment and Royal Flying Corps in the great war, and completed his service in an administrative capacity at Sandhurst. He was responsible for the

development of the Butler forced-field planer drive and electric feed and the introduction of welded fabrication to many special machine tool applications. For two years he was lecturer in metallurgy and welding subjects for the part-time welding course at the Halifax Municipal Technical College, and he has been Honorary Secretary for the Leeds & District branch of the institute for three years.

Mr. A. E. Tylden-Pattenson, Member of the Railway Board, has arrived in this country on leave from India; it is understood that he does not expect to return to India for another six months.

ROAD TRANSPORT (DEFENCE) ADVISORY COMMITTEE

The Secretary to the Ministry of Transport makes the following announcement:—

The composition of the Road Transport (Defence) Advisory Committee appointed by the Minister of Transport to advise him on plans for the most efficient use of road transport in time of a major defence emergency is as follows: Mr. A. T. V. Robinson (Chairman), Second Secretary, Ministry of Transport; Mr. Ernest Bevin, General Secretary, Transport & General Workers' Union; Mr. Sidney E. Garcke, Director of the British Electric Traction Co. Ltd., and Chairman of numerous associated road transport companies; Sir James Milne, General Manager, Great Western Railway; Mr. W. J. Elliott, General Manager, Pickfords Limited, Chaplins Limited, Hay's Wharf Cartage Co. Ltd.; Mr. George Monro, Director, Geo. Monro Limited; Mr. J. S. Nicholl, Director, Allied Transports Limited, and Chief Executive Officer to McNamara Limited; Mr. J. F. Pye, Joint Managing Director and Secretary, H. Pye & Son Ltd., and a Director of London & Southern Counties Transport Co. Ltd.

Railway Development in Turkey

A brief history of the building up of the existing system by various agencies and its consolidation under the Republic

Prior to the proclamation of the Republic in Turkey, the railways of that country were somewhat cosmopolitan. After constant rivalry between the European Powers to build railways on Turkish soil beginning as long ago as 1836, an English concern secured a concession in 1856 and built a line from Izmir to Saraikeui, which was, however, not opened for traffic until 1882. British interests were confined to the Aegean region, but French undertakings embarked upon the Chemins de Fer Orientaux, the line to Adrianople being completed in 1899. Meanwhile German interests obtained concessions for the Anatolia-Baghdad Railway, which reached Ankara in 1892 and Konia in 1896. Eastern Anatolia was, however, starved of railways, the foreign companies concentrating upon undertakings that suited their own individual interests, a state of affairs that has taught the Turks a bitter lesson.

The newly-constituted Republic therefore inherited an entirely foreign-owned system 2,537 miles in extent, an out-of-date system disorganised by war, out of repair, and with practically no spare parts. It is not surprising, therefore, that the Republican Government decided forthwith to buy out the foreign companies, run the lines thus acquired under public administrations and carry out new constructions under State auspices.

As a result, a programme of over 1,500 miles of new line was in hand by 1925, and arrangements were in train for the acquisition of the various foreign-owned railways, so that the national system today consists of 4,076 miles of line, and only 270 miles are still in foreign hands. Details of the

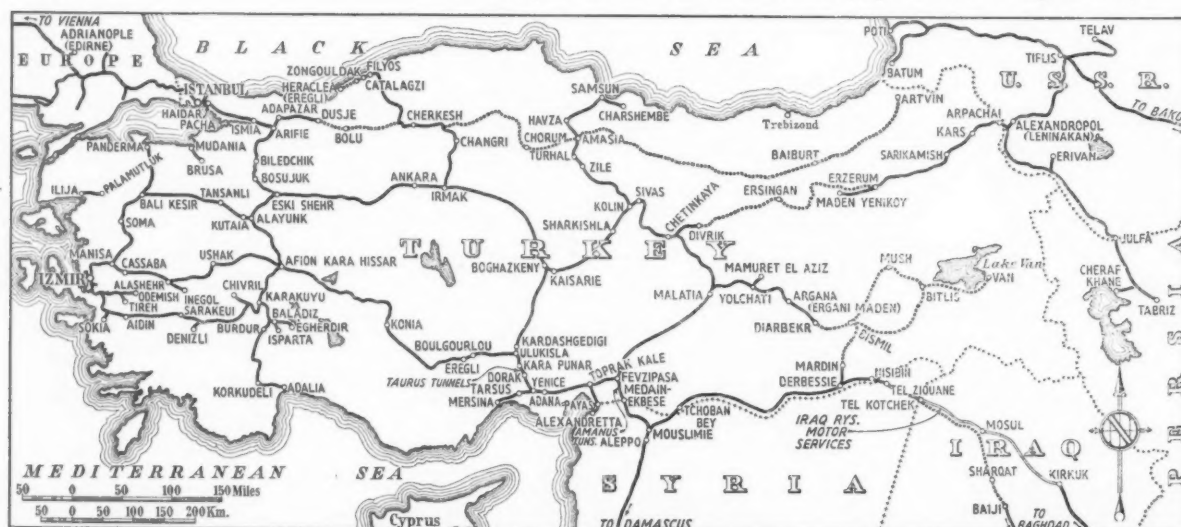
various sections of line comprising these totals are as follow:—

Section of line	Length miles	
State-owned		
Haidar Pasha-Eski Shehr-Konia-Yenice ...	679	Bought by the State.
Eski Shehr-Ankara	164	Do.
Mersina-Yenice-Adana-Malatia-Mamuret El Aziz	359	New construction.
Yolchati-Diarbekr	99	Do.
Izmir-Manisa-Afion-Kara Hissar	262	Bought by the State.
Manisa-Panderna	172	Do.
Alayunk-Bali Kesir	164	New construction.
Afion Kara Hissar-Karakuyu and local lines ...	86	Do.
Izmir-Aidin-Egherdir	378	Bought by the State.
Ankara-Kaisarie-Sivas-Malatia	531	New construction.
Chetinkaya-Divrik	40	Do.
Kolin-Samsun-Charsheben	266	Do.
Irmak-Filyos-Catalazi-Zonguldak	258	Do.
(This line serves the metal works of Karabük and the coal basin of Heraclea-Zonguldak)		
Boghazkeny-Kardashgedigi	107	New construction.
Maden Yenioy-Arpachai	221	Taken from Russia.
Sirkedji (Istanbul)-Adrianople	209	Bought by the State.
Various lines	81	
Total length State railways	4,076	
Lines belonging to private companies:		
Southern line	252	
Ilhja-Palamutluk	18	
Total private railways	270	

The total length of all railways in Turkey is thus 4,346 miles.

There are also several important lines at present under construction, chief among them being the one from Divrik, near Sivas to Erzerum.

We are indebted for this information to *The Times* supplement upon Turkey, published on August 9 last.



Sketch map of the railways of Turkey in Asia showing, with a broken line, railways proposed or under construction

L.M.S.R. Educational Films

The 1938-9 winter tour of L.M.S.R. educational films began on September 26 and a full programme covering 55 provincial centres has been arranged for the period up to February 24 next. On Monday to Thursday of the present week exhibitions were given in the shareholders' meeting room at Euston station, and we were then afforded opportunities for seeing the new season's film activities. Four sound films are being shown, namely, "General Repair," dealing with the overhaul of a locomotive in Crewe works; "Scientific Research," an insight into the work of the L.M.S.R. research laboratory at Derby; "Holiday," a tour of the various departments concerned in the organisation of holiday traffic; and "Events of 1938," the usual annual newsreel covering important events of the past year, which for this purpose comprises the twelve months beginning September, 1937.

These films are prepared under the direction of the Advertising & Publicity Department by an organisation known as the L.M.S. Film Unit. Their object is broadly indicated by their description as educational films, and they are of course used for exhibition to members of the staff and their friends to further the general education of the staff and to foster a pride in the undertaking. The films are also shown to traders in order to convey some idea of the extent and variety of the services offered by the L.M.S.R., and this aspect of the company's film work is also catered for by the preparation of special 16-mm. "non-flam" copies of the films, which are available for borrowing by interested organisations from the company's library.

Lincoln Welding Foundation Awards

The James F. Lincoln Arc Welding Foundation has made 382 awards to authors submitting papers on welding. This foundation was instituted last year by the Lincoln Electric Company of the U.S.A. (with which is affiliated the Lincoln Electric Co. Ltd. of Welwyn Garden City, Herts.), and, as announced in our issue of February 26, 1937, provides for the distribution of \$200,000 among 46 prizes for the best papers on arc welding applied to 11 major divisions of industry.

The Jury of Award for the contest now concluded states that the savings to industry claimed by the authors of papers aggregated \$1,600,000,000, a figure arrived at after discounting some very enthusiastic claims.

Altogether 382 awards were made, 11 going to English entrants. The second grand award of \$11,397 was made to Messrs. Anant H. Pandya and R. J. Fowler, engineers, of Diagrid Structures Limited, London, for their paper entitled "All-Welded Grid Applied to Plane and Spatial

Structures." Among those who submitted the remaining ten prize-winning papers from this country was Mr. Arthur Kershaw, of the Butler Machine Tool Co. Ltd., Halifax, who received \$305 for his contribution, "Welded Design of a Single-Housing Planer."

The grand award of \$13,941 was made to Mr. and Mrs. A. E. Gibson, respectively Chairman and a stockholder of the Wellman Engineering Company, Cleveland, Ohio, whose paper was a treatise on all the elements required to assure the business and technical success of all users of welding throughout industry.

Railway Developments in the Belgian Congo

During the period 1932-36 about 428 km. of new line were constructed, making a total of 4,782 km. throughout the whole of the Belgian Congo.

The latest transport development is the unification, under the name of "Otraco," or Office des Transports Coloniaux, of the five transport systems in the Lower Congo (see editorial note on page 597). Considerable extension of new lines and improvement of existing lines have been programmed for completion during the next three years, at a budgeted cost of fr. 46,000,000, which includes fr. 30,000,000 for new branch lines, fr. 6,600,000 for rolling stock and other mechanical equipment, fr. 4,000,000 for port equipment, and fr. 5,300,000 for permanent way and signalling improvements and for a new station at Leopoldville.

During the period 1932-37 inclusive traffic tonnages on the Lower Congo lines have risen steadily from 370,000 to 618,700 metric tons, exclusive of the railway coal carried. The net profit to the colony for the first full year of Otraco management of the Leopoldville-Matadi Railway was estimated at fr. 9,350,000 according to the Department of Overseas Trade's Report on Economic and Commercial Conditions in the Belgian Congo.

INSTITUTE OF TRANSPORT.—The inaugural meeting in London of the session 1938-39 has been arranged for Monday, October 10, 1938, at 5.30 p.m., in the Lecture Theatre of the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. Mr. Gilbert S. Szlumper, C.B.E., is due to deliver his presidential address and at its conclusion to hold an informal reception. On Tuesday, October 25, at 6 p.m., Mr. Szlumper will attend the inaugural meeting of the Institute of Transport Metropolitan Graduate and Student Society, when he will hold a reception and give a short address.

Staff and Labour Matters

Strike of Lorry Drivers, G.N.R. (Ireland)

This strike, which has been in operation for about nine weeks as the result of a demand for higher wages and improved conditions of employment, has ceased temporarily on the basis of the re-employment of as many of the permanent men concerned for whom immediate work can be found. The strike, causing the absence of delivery at stations by lorry, has brought into prominence the possibility of horse delivery. On the Great Southern Railways this has been developed appreciably and has resulted in considerable saving in the working of railhead services, especially for town deliveries. Apart from the saving in the actual delivery by horses, the latter free the lorries for longer haulage to outlying districts and in many cases prevent the importation of a lorry from another station or district to complete the work of the day.

Forthcoming Events

- Oct. 8 (Sat).—Stephenson Locomotive Society (Midlands-Northern), at 4, Bury Old Road, Manchester, 6.30 p.m. Annual Meeting.
- Oct. 10 (Mon).—Institute of Transport, at Inst. of Electrical Engineers, Savoy Place, W.C.2, 5.30 p.m. Presidential Address by Mr. Gilbert S. Szlumper, C.B.E.
- Stephenson Locomotive Society (London), at King's Cross Station, L.N.E.R., 6.30 p.m. "Step Children of the Locomotive World," by Mr. J. Kite.
- Oct. 11 (Tues).—Mary Ward Settlement, Tavistock Place, London, W.C.1, 8 p.m. "The Planning of London: Buildings," by Mr. P. Bowie.
- Permanent Way Institution (Sheffield), at Royal Victoria Hotel, 7 p.m. "Rail Joints," by Mr. W. White.
- Oct. 12 (Wed).—Permanent Way Institution (London), at Underground Railways' Dining Club, Pelham Street, S.W.7, 7 p.m. "The Methods Employed in Renewing Track with 120 ft. Rails," by Mr. C. Herbert.
- Oct. 13 (Thurs).—Institute of Fuel (London), at Inst. of Mechanical Engineers, Storey's Gate, S.W.1, 2.30 p.m. Presidential Address by Lt.-Col. J. H. M. Greenly, C.B.E. Annual Dinner, at Connaught Rooms, Great Queen Street, W.C.2, 6.45 for 7.15 p.m.
- Oct. 14 (Fri).—Institution of Railway Signal Engineers, at the Criterion Restaurant, W.1, at 6.30 for 7 p.m. Annual Dinner.
- Oct. 18 (Tues).—Federation of Railway Lecture and Debating Societies (N.E. Area), at Co-Operative Hall, Railway Street, York, 7 p.m. Paper on Electrification, by Mr. R. Brooks.
- Institute of Transport (London), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 6 p.m. "The Transport of the Grain Harvests of the World," by Mr. C. Bentham.
- Mary Ward Settlement, Tavistock Place, London, W.C.1, 8 p.m. "The Planning of London: Water Supply," by Mr. R. Tisdale.
- Permanent Way Institution (Scottish), at Royal Technical College, George Street, Glasgow, 7.15 p.m. "Concrete for Railway Structures," by Mr. R. Boyd.
- Oct. 20 (Thurs).—Institution of Locomotive Engineers (Scottish), at Royal Technical College, George Street, Glasgow, 7.30 p.m. General Meeting.
- Institution of Mechanical Engineers, at Connaught Rooms, Great Queen Street, London, W.C.2. Annual Dinner.

NOTES AND NEWS

Finnish Railways and the Olympic Games.—New sidings are being laid at Helsingfors station, and the lines to Viipuri and Turku are to be overhauled and improved in preparation for the 1940 Olympic Games, which are to be held there. In addition, the harbour at Turku is to be extended in view of the larger number of vessels expected.

German Streamlined Locomotives.—It is reported that trials with the Reichsbahn's six-coupled express locomotives showed a coal economy of 15 per cent. in favour of the streamlined type when running on schedules of over 70 m.p.h. Another 4-6-4 streamlined Henschel-Wegmann tank locomotive has been ordered.

Balkans Inter-Railway Pact.—At a number of meetings held in Ankara, Bucharest, and other centres during the course of the present year, various agreements have been signed by delegates from the Turkish, Greek, Yugoslav, Bulgarian, and Roumanian State Railways to regulate on a common basis the tariffs and conditions of the inter-country traffic.

Canadian Pacific Earnings.—Gross earnings of the Canadian Pacific Railway for the month of August, 1938, amounted to \$12,183,000, an increase of \$268,000 in comparison with August, 1937. Working expenses were \$11,692,000, or \$354,000 higher, leaving net earnings \$86,000 lower at \$491,000. Aggregate gross earnings for the first eight months of 1938 were \$84,561,000, a decrease of \$6,186,000, and the net earnings of \$3,679,000 for the same period showed a fall of \$6,253,000 in comparison with the first eight months of 1937.

Canadian National Earnings.—The August, 1938, gross earnings of the Canadian National Railways were \$15,551,529, a decrease of \$934,032 compared with August, 1937. Operating expenses amounted to \$14,891,281, with a decrease of \$1,035,750, resulting in net earnings of \$660,248, against \$558,530 for August, 1937. Aggregate gross earnings for the first eight months of 1938 amounted to \$112,487,805, a decrease of \$15,657,055, and there was a deficit for the eight months of \$5,116,693, as compared with net earnings of \$8,185,377 for the first eight months of 1937.

Merchandise Transport Co-ordination in Eire.—The Great Southern Railways Company has given considerable attention to the organisation of delivery of goods from door to door by means of its railhead services. In order to reduce the expense of these services it has been decided that delivery to outlying districts for which only small quantities of traffic offer will be made only on specified days and not on every weekday. This means that the expense of sending small quantities of traffic is reduced to the minimum. A booklet has been issued of the town

and country cartage services, giving a list of the towns and the villages served, as well as the mileage from the station and the day on which the service is performed.

Interference with Rock-Fall Signals, L.M.S.R.—On August 14, at Dunblane, Scotland, a man was fined for interfering with the special signals installed in the pass of Brander between Callander and Strathgryre to afford protection against falls of rock. The breakage of a wire sets signals at danger and sounds an alarm in a platelayer's hut. The culprit had disconnected some wires, and a train was stopped unnecessarily.

Northern Ireland Road Transport Board's Finances.—In accordance with powers granted by the Northern Ireland Parliament, the Ministry of Finance has guaranteed the principal and interest of a loan of £800,000 proposed to be raised by the Northern Ireland Road Transport Board under Section 21 of the Road & Rail Transport Act, 1935. The guarantee is for a period not exceeding five years from August 23, 1935. A sum of £1,000,000 has already been guaranteed by the Ministry under the provisions of the Act, making with this latest amount a total of £1,800,000.

Institution of Railway Signal Engineers.—At the meeting in London on October 5, a paper was read by Mr. A. W. Woodbridge, M.Sc., of the Great Western Railway, entitled "Notes on Acceleration, Speed, and Retardation of Trains and their Relation to Signalling." In the discussion the following spoke: Messrs. S. L. Glenn, H. M. Proud, G. W. Wyles, J. C. Kubale, F. R. Addis, R. F. Morkill, A. E. Hudd, T. J. Aldridge, V. Openshaw, and the President, Mr. G. H. Crook. An abridgement of the paper appears on page 607. The annual dinner of the institution will be held at the Criterion Restaurant, London, on October 14 at 6.30 for 7.0 p.m.

The L.M.S.R. and the Crisis.—To cater for the large numbers of people leaving London during the international crisis last week, the L.M.S.R. duplicated 24 long-distance trains from Euston and ran two others in three portions, making a total of 28 extra trains from Euston alone during the week. Among trains running in more than one portion on several days were the day and night Irish mails, the Royal Scott, the Comet, the Merseyside Express, and the Royal Highlander. In addition to duplications, other expresses to Wales and Scotland were well patronised, loading to 17 vehicles in several cases, whilst traffic to Liverpool for the American liners was very heavy on the Friday. The takings at the Euston main-line booking office on Tuesday and Wednesday showed an increase of £12,000 over normal days, and on Thursday a record number of dog, bicycle, and perambulator tickets

was issued. So many single journey tickets were issued at Euston that at one time it seemed there might be a shortage, but a new supply was quickly requisitioned.

L.M.S.R. Centenary Exhibition for Birmingham.—The L.M.S.R. announces that in conjunction with the Birmingham civic authorities arrangements are being made for the "Century of Progress" Exhibition, recently held at Euston to commemorate the centenary of the London & Birmingham Railway, to be repeated in Birmingham from October 10 to 20. Historic locomotives and coaches will be on show at No. 1 Bay, New Street station, from 11 a.m. to 5 p.m. (except Sunday), and a large collection of railway relics and models will be displayed in the Birmingham City Art Gallery.

Joint Railway Poster for Bath.—The G.W.R., the L.M.S.R., and the Bath Publicity Committee have co-operated in the issue of a poster by Mr. Frank Newbould entitled "Historic Bath." Photography is combined with graphic art to form a forceful design suggesting Bath as a Roman city and a present-day spa, the significant features of the composition being superimposed to convey the idea of the persistence in modern Bath of the health-giving attributes discovered by its founders and cherished ever since. The letterpress of the poster includes the G.W.R. and the L.M.S.R. monograms, and directs the notice of prospective visitors to "The Bath Book," obtainable from the Spa Director, the Pump Room.

East Prussian Station Names.—On August 15 the German State Railway altered the names of no fewer than 123 station names in the Königsberg Division of East Prussia, chiefly, it would appear, to eliminate traces of the Slav style of spelling, which has persisted with large numbers of place names in this part of the country. In some cases the change is merely the substitution of German for the older spelling, as with Tollmingkehmen, which becomes Tollmingen, or Schelecken, which becomes Schlicken, but in others the name has been entirely altered. Thus Pillkallen becomes Schlossberg, and Bialken becomes Weissenbruch. Reference to some of these name changes was made on page 419 of our September 2 issue.

London Transport Players.—On Thursday, Friday, and Saturday of last week the London Transport Players presented Gilbert and Sullivan's light opera "Iolanthe" at the Fortune Theatre, W.C. The producer was Mr. Cyril Corker, who also took the part of the Lord Chancellor. The principal male parts were uniformly good, but with the notable exception of Miss Adeline Sealy as the "ward in Chancery," the ladies of the company, both leads and chorus, were less happily cast. The London Transport Orchestra was under the direction of Mr. Frederick Doughty. The London Transport Dramatic Club, another section of the London Transport Musical & Dramatic

Society, has announced the forthcoming production at the Cripplegate Theatre on November 11 of "A Murder Has Been Arranged," preceded by "The Devil Was Sick."

Trial in Connection with the Bihta Derailment.—Mr. C. W. Ralph, Deputy Traffic Controller at Dinapore, East Indian Railway, who, in Sir John Thom's judicial report on the Bihta derailment, was found guilty of gross dereliction of duty, is now under trial at Dinapore, under Section 101 of the Indian Railways Act. He is accused of failing to have a caution order issued, an act which would almost certainly have had the effect of preventing the accident. The driver of a previous mail train reported to the Night Shed Assistant at Dinapore a serious double lurch when running at about 50 m.p.h. near Bihta, and the Night Assistant duly reported the matter to the control staff, who, however, failed to take action.

Storm Damage on Railways.—Some delay and damage was caused to the railways by the heavy storms experienced in the early part of this week. Southern Railway cross-Channel services were disorganised. On Tuesday, there was one boat only from Boulogne to Folkestone and no crossing was made in the opposite direction; one service only was maintained between Dover and Calais in each direction. The Newhaven-Dieppe and other English Channel services were maintained, but some delays experienced. It proved impossible to restore normal services on Wednesday as well. On the L.N.E.R., considerable danger to a Liverpool Street-Cambridge express was averted on Tuesday last by the quick action of a local resident in warning the station staff at Broxbourne that a telegraph pole had been blown across the rails. On the same day a passenger footbridge at Cheadle Heath station, Cheshire, on the L.M.S.R. Derby-Manchester main line, was blown down, blocking both tracks for nearly an hour. At Brislington, near Bristol, a tree fell across the engine of a train from Weymouth; little damage was done, however.

Northern Ireland Traffics.—Passengers carried on railways wholly in Northern Ireland (excluding season ticket holders) in the first half of 1938 numbered 2,166,520, compared with 2,266,698 in the first half of 1937, and total passenger receipts fell from £114,837 to £112,761. Merchandise and minerals conveyed in the first six months of 1938 were 259,113 tons, a decrease of 45,001 tons in comparison with the first six months of 1937; the number of livestock fell from 116,333 to 96,754, and the total goods traffic receipts from £111,636 to £97,073. On railways partly in Northern Ireland, the ordinary passengers in the first half of 1938 were 2,199,478, against 2,228,795 in the first six months of 1937, but the total passenger receipts of £192,441 were £2,557 higher. Merchandise and mineral tons

dropped from 474,568 to 440,372, and the number of livestock from 385,668 to 313,278, and the total receipts from goods traffic were £293,649, against £313,406 for the first six months of 1937.

Cause of Jamaica Railway Accident.—In our issue of August 5 last, we reported a serious accident that occurred on July 30, near Balaclava, wherein a passenger train, which had a pusher engine in rear, became derailed in a cutting and on a curve. The leading engine and front vehicles became piled up against the cutting wall by the pusher engine's continuing to propel the remainder of the train until its driver became aware of the derailment. The board of commissioners appointed to inquire into the cause of the accident has now found that the speed of the train was about 35 m.p.h., as against 20 m.p.h. allowed as maximum under the rules in force.

Elderslie Accident, L.M.S.R.—At the inquiry which was opened at Glasgow by Colonel A. C. Trench, on September 21, on the collision between a passenger train and a light engine at Elderslie station, L.M.S.R., near Paisley, on September 10, Mr. J. N. Phillips, Operating Manager (Scotland), said that a woman passenger had died since the accident, but it was not known to what extent death was due to it. The light engine was standing in the station, waiting to be crossed over the junction, when the train ran into it. There was not much damage. The driver first thought the engine was on a loop line, but realised it was on his own when about 40 yd. away. He reduced speed to 12 or 15 m.p.h. Mr. J. Greig, District Controller, said that the signalman at the Ferguslie box, P. Latta, died in his sleep on the morning after the accident. He was 65, and due to retire in December. Colonel Trench decided to conclude his inquiry in private.

L.N.E.R. Musical Society.—The thirtieth annual meeting of the members was held in the board room at Liverpool Street station on Wednesday, September 28, Mr. William Whitelaw, President of the society, in the chair. The report and balance sheet for the past season were adopted and the officers re-elected. The thanks of the members were given to the Chairman, directors, and officers of the company for their valuable support, and to the officers of the society, and the Chairman and members of the committee for their services. This was acknowledged by Mr. C. H. Newton, Chairman of Committee. A vote of thanks was accorded to Mr. Whitelaw for presiding. Mr. Whitelaw in reply said he attached enormous importance to the existence and success of the society, and they all felt they were assisting something that was worth while. Although he was retiring from the chairmanship of the railway, he would see the society, which had been a great joy to him, through the coming season. He concluded by paying a warm tribute to the work of Mr. A. W. Headley, the Honorary Secretary.

Railway and other Reports

Bengal Dooars Railway Co. Ltd.—The directors recommend the payment of a final dividend of 4 per cent. on the ordinary stock, subject to income tax, making a total distribution of 6½ per cent. for the year ended March 31.

Buenos Ayres Western Railway Limited.—The board of directors regrets to announce that owing to the falling off in traffics as the result of a disastrous crop, the earnings of the past year ended June 30, 1938, will not permit of any dividend being paid on the 5 per cent. and 4½ per cent. preference stocks of the company.

Buenos Ayres Great Southern Railway Co. Ltd.—It is announced by the directors that payment of a dividend of 1 per cent. for the year ended June 30, 1938, upon the company's 5 per cent. preference stock will be made on November 4 next. In view of the setback that has occurred in Argentina, the board regrets that no further distribution on the 5 per cent. preference stock or any payment on the 6 per cent. preference stock can be made.

Central Argentine Railway Limited.—The directors are unable to recommend any dividend on the 4½ per cent. preference stock and 6 per cent. cumulative preference stock in respect of the year to June 30, 1938. For the preceding year the full payment was made on the 4½ per cent. preference stock (the dividend on which is non-cumulative), and two years' arrears to June 30, 1934, were paid on the 6 per cent. stock.

South Indian Railway Co. Ltd.—The directors have decided to recommend that a final dividend for the year 1938 of 1 per cent., less income tax, be paid from surplus profits on January 2, 1939, making with the guaranteed interest of 1¼ per cent. payable on the same date, a total payment of 2¼ per cent., less income tax, for the half-year ending December 31, 1938, and together with the payment that was made on July 1, 1938 (namely, 2½ per cent.), a total payment of 5 per cent. for the year.

British Oxygen Co. Ltd.—An interim dividend on the ordinary stock of 7 per cent., less tax, on account of 1938, will be payable on November 1. This is at the same rate as the interim for the previous year.

Stothert & Pitt Limited.—Preliminary figures show that the profit, before deducting tax, for the year to June 30 last amounted to £66,231, against £65,218 for the previous year. A dividend is recommended of 10 per cent. on the ordinary capital, plus a cash bonus of 2½ per cent., both less tax. These rates are the same as for the preceding 12 months.

Murex Limited.—The directors recommend a final dividend on the ordinary shares of 10 per cent., together with a cash bonus of 2½ per cent., making, with the interim dividend of

7½ per cent. already paid, a total distribution of 20 per cent., less tax, for the year ended June 30, 1938.

Netherlands Railways.—The gross receipts for the first half of this year were 46,568,862 fl., compared with 48,407,089 fl. in the corresponding period of 1937.

British Aluminium Co. Ltd.—An interim dividend of 4 per cent. on the ordinary stock was paid on October 1. This is at the same rate as a year ago, but on a largely increased capital.

Vulcan Foundry Limited.—With the consent of the Board of Trade the directors have decided that the current financial period shall extend for 18 months to December 31, 1938. The difficulty of obtaining delivery of raw materials continues and important contracts remain uncompleted. In these circumstances the directors have decided not to make an interim distribution and to postpone until the accounts for the 18 months are completed the payment of any dividend. Work in pro-

gress amounted at June 30 to over £317,000, as compared with £93,901 at June 30, 1937. The company's order book, which has shown a continuing expansion during the past months, compares favourably with recent years and includes important Government contracts.

Leyland & Birmingham Rubber Co. Ltd.—Profits for the year to June 30 last, after providing for income tax and N.D.C., were £104,077, to which had to be added the balance from the previous year of £30,615, giving a total of £134,692. Deducting £22,247 for reserve for discounts, bad and doubtful debts, and directors' remuneration, and the 2½ per cent. interim dividend of £15,000 and dividends on the preference shares of £6,000, there remained a disposable balance of £91,445. Out of this a sum of £7,500 has been placed to the reserve fund, and a final dividend of 7½ per cent., together with a bonus of 1½ per cent., has been paid, leaving £31,445 to be carried forward. For the previous year the same dividends were paid, but the bonus was 2½ per cent.

British and Irish Railway Stocks and Shares

Stocks	Highest 1937	Lowest 1937	Prices	
			Oct. 5, 1938	Rise/ Fall
G.W.R.				
Cons. Ord. ...	67 ³ / ₈	55 ³ / ₄	35 ¹ / ₂	+1 ¹ / ₂
5% Con. Prefce. ...	127	108	93 ¹ / ₂	+8
5% Red.Pref.(1950) ...	113	109	94 ¹ / ₂	+2
4% Deb. ...	113 ⁵ / ₈	102 ¹ / ₂	102 ¹ / ₂	+3
4 ¹ / ₂ Deb. ...	118	106	104 ¹ / ₂	+2
4 ¹ / ₂ Deb. ...	124 ¹ / ₂	112	109 ¹ / ₂	+1
5% Deb. ...	136 ¹ / ₂	122 ³ / ₄	121 ¹ / ₂	+1
2 ¹ / ₂ Deb. ...	76	64	66 ¹ / ₂	—
5% Rt. Charge ...	1337 ¹ / ₁₆	118	118 ¹ / ₂	+3 ¹ / ₂
5% Cons. Guar. ...	133 ³ / ₄	116 ¹ / ₂	109 ¹ / ₂	+4
L.M.S.R.				
Ord. ...	361 ⁸ / ₁₆	25 ⁵ / ₈	131 ² / ₂	+1 ¹ / ₂
4% Prefce. (1923) ...	82 ¹ / ₂	65 ³ / ₄	29	+3 ¹ / ₂
4% Prefce. ...	92 ¹ / ₂	77 ³ / ₄	55 ¹ / ₂	+5 ¹ / ₂
5% Red.Pref.(1955) ...	107 ³ / ₄	102	77 ¹ / ₂	+5
4% Deb. ...	108	99 ¹ / ₄	100	+10 ¹ / ₂
5% Red.Deb.(1952) ...	117 ¹ / ₂	111	109 ¹ / ₂	+1
4% Guar. ...	104	95 ⁷ / ₈	91	+8 ¹ / ₂
L.N.E.R.				
5% Pref. Ord. ...	121 ² / ₂	65 ³ / ₄	41 ² / ₂	+5 ³ / ₄
Def. Ord. ...	61 ⁴ / ₄	35 ³ / ₈	25 ⁴ / ₄	+1 ⁴ / ₄
4% First Prefce. ...	79 ¹ / ₂	63	28	+4 ¹ / ₂
4% Second Prefce. ...	31 ¹ / ₂	21	10 ¹ / ₂	+1
5% Red.Pref.(1955) ...	101 ¹ / ₄	89 ³ / ₄	46 ¹ / ₂	+2
4% First Guar. ...	103	91 ⁷ / ₈	81	-6
4% Second Guar. ...	97 ⁵ / ₈	85 ¹ / ₂	60	+7 ¹ / ₂
3% Deb. ...	84 ¹ / ₈	74	70	+7 ¹ / ₂
4% Deb. ...	107 ¹ / ₄	98 ¹ / ₂	92 ¹ / ₂	+12 ¹ / ₂
5% Red.Deb.(1947) ...	113 ¹ / ₂	106 ¹ / ₂	105*	+5
4 ¹ / ₂ Sinking Fund Red. Deb. ...	110 ¹ / ₁₆	105 ¹ / ₂	105	+5
SOUTHERN				
Pref. Ord....	98 ⁵ / ₈	83 ¹ / ₂	55 ¹ / ₂	+6
Def. Ord. ...	27 ⁷ / ₈	16 ³ / ₄	12 ² / ₂	+2 ¹ / ₂
5% Pref. ...	126 ¹ / ₁₆	105 ¹³ / ₁₆	94 ¹ / ₂	+9
5% Red.Pref.(1964) ...	118	110 ¹ / ₄	100 ¹ / ₂	+3
5% Guar. Prefce. ...	133 ³ / ₄	116 ³ / ₄	110 ¹ / ₂	+3 ¹ / ₂
5% Red.Guar.Pref.(1957) ...	118 ¹ / ₂	111 ¹ / ₂	110 ¹ / ₂	+3 ¹ / ₂
4% Deb. ...	112	101 ¹ / ₄	103	+5 ¹ / ₂
5% Deb. ...	135 ³ / ₄	123 ¹ / ₂	122 ¹ / ₂	+2
4% Red. Deb. ...	113	105	104 ¹ / ₂	+2
1962-67				
BELFAST & C.D.				
Ord. ...	5	4	4	—
FORTH BRIDGE				
4% Deb. ...	106	99 ¹ / ₂	100 ¹ / ₂	—
4% Guar. ...	105 ³ / ₄	99	99 ¹ / ₂	—
G. NORTHERN (IRELAND)				
Ord. ...	11	5	27 ⁸ / ₈	—
G. SOUTHERN (IRELAND)				
Ord. ...	50	21 ¹ / ₂	20	—
Prefce. ...	61	34	13 ¹ / ₄	—
Guar. ...	94 ³ / ₄	69 ¹ / ₂	35	—
Deb. ...	95	82 ¹ / ₂	57	-1
L.P.T.B.				
4 ¹ / ₂ % "A" ...	123 ³ / ₄	110 ¹ / ₂	116 ¹ / ₂	+5 ¹ / ₂
5% "A" ...	135	121 ¹ / ₂	123 ¹ / ₂	+4
4 ¹ / ₂ % "T.F.A." ...	108 ¹ / ₂	104	104 ¹ / ₂	+4
5% "B" ...	125	114 ¹ / ₂	116 ¹ / ₂	+7
"C" ...	99 ³ / ₄	75	76 ¹ / ₂	+5 ¹ / ₂
MERSEY				
Ord. ...	42 ⁵ / ₈	22	20	—
4% Perp. Deb. ...	103	96 ³ / ₄	92 ¹ / ₂	-6 ¹ / ₂
3% Perp. Deb. ...	77 ⁵ / ₈	74 ¹ / ₂	67 ¹ / ₂	-6
3% Perp. Prefce. ...	68 ³ / ₄	61 ¹ / ₄	59	-3 ¹ / ₂

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 39th Week			Totals to Date		
	1938	1937	Inc. or Dec.	1938	1937	Inc. or Dec.
L.M.S.R. (6,834 mls.)						
Passenger-train traffic...	548,000	523,000	+ 25,000	20,979,000	20,920,000	+ 59,000
Merchandise, &c. ...	487,000	536,000	- 69,000	17,492,000	19,119,000	- 1,627,000
Coal and coke ...	264,000	259,000	+ 5,000	9,625,000	9,861,000	- 236,000
Goods-train traffic ...	731,000	795,000	- 64,000	27,117,000	28,983,000	- 1,866,000
Total receipts ...	1,279,000	1,318,000	- 39,000	48,096,000	49,903,000	- 1,807,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	338,000	332,000	+ 6,000	13,557,000	13,647,000	- 90,000
Merchandise, &c. ...	349,000	365,000	- 16,000	12,229,000	13,143,000	- 914,000
Coal and coke ...	251,000	265,000	- 14,000	9,087,000	9,564,000	- 477,000
Goods-train traffic ...	600,000	630,000	- 30,000	21,316,000	22,707,000	- 1,391,000
Total receipts ...	938,000	962,000	- 24,000	34,873,000	36,354,000	- 1,481,000
G.W.R. (3,737 mls.)						
Passenger-train traffic...	230,000	213,000	+ 17,000	8,818,000	8,883,000	- 65,000
Merchandise, &c. ...	210,000	223,000	- 13,000	7,187,000	7,754,000	- 567,000
Coal and coke ...	112,000	111,000	+ 1,000	4,144,000	4,326,000	- 182,000
Goods-train traffic ...	322,000	334,000	- 12,000	11,331,000	12,081,000	- 749,000
Total receipts ...	552,000	547,000	+ 5,000	20,149,000	20,963,000	- 814,000
S.R. (2,148 mls.)						
Passenger-train traffic...	331,000	313,000	+ 18,000	13,146,000	13,197,000	- 51,000
Merchandise, &c. ...	77,500	73,000	+ 4,500	2,365,000	2,462,500	- 97,500
Coal and coke ...	39,500	35,000	+ 4,500	1,170,000	1,185,500	- 15,500
Goods-train traffic ...	117,000	108,000	+ 9,000	3,535,000	3,618,000	- 113,000
Total receipts ...	448,000	421,000	+ 27,000	16,681,000	16,815,000	- 161,000
Liverpool Overhead (6½ mls.)						
Mersey (4½ mls.) ...	1,289	1,271	+ 18	53,645	50,981	+ 2,661
*London Passenger Transport Board ...	4,566	4,530	+ 36	170,666	163,565	+ 7,101
	584,100	588,400	- 4,300	7,870,300	7,826,900	+ 43,400
IRELAND						
Belfast & C.D. pass. ...	2,261	2,301	- 40	103,106	106,738	- 3,632
" " goods ...	541	494	+ 47	16,990	18,975	- 1,985
" " total ...	2,802	2,795	+ 7	120,096	125,713	- 5,617
Great Northern pass. ...	13,300	13,450	- 150	445,500	450,050	- 4,550
" " goods ...	12,450	11,250	+ 1,200	348,300	370,650	- 22,350
" " total ...	25,750	24,700	+ 1,050	793,800	820,700	- 26,900
Great Southern pass. ...	46,678	44,502	+ 2,176	1,483,513	1,482,754	+ 759
" " goods ...	45,882	44,118	+ 1,764	1,531,076	1,580,197	- 49,121
" " total ...	92,560	88,620	+ 3,940	3,014,589	3,062,951	- 48,362

* 14th week (before pooling)

*ex dividend

OFFICIAL NOTICES

Buenos Ayres Great Southern Railway Company Limited

THE Directors of the Buenos Ayres Great Southern Railway Company Limited, hereby give notice that the Transfer Books and Registers of the 5 per cent. Preference Stock will be closed from Saturday, the 8th October to Thursday, the 20th October, 1938, both days inclusive.

Warrants for the payment of dividend at the rate of one per cent. in respect of the year ended 30th June, 1938, will be posted on the 3rd November.

The Annual General Meeting will be held on the 25th October, 1938.

By Order of the Board,
N. F. E. GREY,
Secretary.

River Plate House,
Finsbury Circus,
London, E.C.2.
5th October, 1938.

South Indian Railway Company Limited

THE Directors are prepared to receive Tenders for the supply of:—

SOLID DRAWN STEEL BOILER TUBES. Specifications and Forms of Tender will be available at the Company's Offices, 91, Petty France, Westminster, S.W.1.

Tenders, addressed to the Chairman and Directors of the South Indian Railway Company Limited, marked "Tender for Boiler Tubes," with the name of the firm tendering, must be left with the undersigned not later than 12 noon on Friday, the 28th October, 1938.

The Directors do not bind themselves to accept the lowest or any tender.

A charge, which will not be returned, will be made of 10s. for each copy of the Specification.

Copies of the drawings may be obtained at the Offices of the Company's Consulting Engineers, Messrs. Robert White & Partners, 3, Victoria Street, Westminster, S.W.1.

E. A. S. BELL,
Managing Director.

91, Petty France,
Westminster, S.W.1.
5th October, 1938.

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS

APPLICATIONS from qualified candidates are invited for the following post:—

SECTION ENGINEER

required for the Nigerian Government Railway for two tours each of 12-24 months, with prospect of permanency. Salary £475-£840 a year. Free passages and quarters and liberal leave on full salary. Candidates, age 25-35, should be Corporate Members of the Institution of Civil Engineers or possess an Engineering Degree recognised as granting exemption from Sections A and B of the A.M.I.C.E. examination, and have had practical experience in bridge and reinforced concrete construction. Candidates who are students of the Institution of Civil Engineers and have had the requisite practical experience, are also eligible for consideration.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience and mentioning this paper, to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/6607.

Assistant Engineer

REQUIRED for the Iraq State Railway for three years. Salary Iraq Dinars 70 a month (I.D. 1 equals £1). Free passages and liberal leave on full salary. The post is not pensionable but there is a Provident Fund Scheme. Candidates, not over 40 years of age, must be Associate Members of the Institution of Civil Engineers or hold an engineering degree recognised as granting exemption from Sections A and B of the A.M.I.C.E. examination; have had practical experience on a Railway.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience and mentioning this paper, to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/5964.

Bengal and North Western Railway Company Limited

THE Directors are prepared to receive tenders for the supply of:—

6 YR LOCOMOTIVES AND TENDERS as per specification to be seen at the Company's Offices.

Tenders addressed to the undersigned, and envelope marked "Tender for Locomotives," with the name of the firm tendering, to be lodged not later than noon on the 8th day of November, 1938.

For each specification a fee of £1 will be charged, which cannot under any circumstances be returned.

The Directors do not bind themselves to accept the lowest or any tender.

By Order of the Board,
J. WILLIAMSON,
Managing Director.

237, Gresham House,
Old Broad Street,
London, E.C.2.
5th October.

CARRIAGE AND WAGON DESIGNER DRAUGHTSMAN required by large rolling stock works in India. A single man about 30 years of age preferred who has had extensive drawing office and practical works experience in a rolling stock works of repute. Five years' agreement, free passages, provident fund and a salary of about £45 per month. Apply by letter with copies of testimonials, stating age and whether married to: "SOLEBAR," c/o W.M. ARBOTT, LTD., 32, Eastcheap, London, E.C.3.

Central Argentine Railway Limited

NOTICE IS HEREBY GIVEN that the Transfer Books of the Company for 4½ per cent. Preference, 6 per cent. Cumulative Preference, Consolidated Ordinary, and Deferred Stocks, will be closed from 15th to 27th October, 1938, both days inclusive.

RONALD LESLIE,
London Manager and
Secretary.

3A, Coleman Street,
London, E.C.2.
4th October, 1938.

CONTRACTS AND TENDERS

Hurst, Nelson & Co. Ltd. has received orders from the Mysore State Railways, to the inspection of Messrs. Rendel, Palmer & Tritton, for two metre-gauge IRS type MBTPX bogie petrol tank wagons and one IRS type MBTOX bogie oil tank wagon, in each case complete with wheels and axles and vacuum and hand brakegear.

Jessop & Co. Ltd. has received the contract from the North Western Railway of India for the supply of 17 triangulated 155 ft. 8 in. girder spans, complete with cast steel roller and rocker bearings, intermediate rail bearer spans over piers and abutments, and bolts, nuts, and rivets required for the Victoria bridge, near Malakwal, Rawalpindi division. Tata's steel is to be used.

Leyland Motors Limited has received an order from the Scottish Motor Traction Co. Ltd. for six double-decked oil-engined passenger vehicles.

Volkart Bros. has received orders from the Indian Stores Department for 17,900 steel boiler tubes and 450 steel flue tubes.

D. Wickham & Co. Ltd. has received a repeat order from the Midland Uruguay Railway for one No. 8 petrol-driven light inspection railcar.

The Blaenavon Co. Ltd. has received an order from the South Indian Railway

for 403 locomotive tyres, to be supplied to the inspection of Messrs. Robert White & Partners.

The Hydraulic Coupling & Engineering Co. Ltd. has received an order from the L.M.S.R. for a scoop-controlled fluid coupling for a conveyor to be used for the transshipment of mails and newspapers at Holyhead harbour.

The Egyptian State Railways Administration has recently placed the following orders:—

Fried Krupp A.G.: Round mild steel (Ref. No. E.S.R. 301G/34 1.459, total price £872, delivery f.o.b. Antwerp or £951 c.i.f. Gabbary Quay, Alexandria).

Osnabrucker Kupfer-und-Drahtwerk: Bronze and copper wire (Ref. No. E.S.R. 330G/42, item No. 1, total price £626 delivery c.i.f. Alexandria; and item No. 2, total price £372 12s. delivery f.o.b. Bremen).

Hackethal Draht-und Kabelwerke: Bronze and copper wire, item No. 3, total cost £80, delivery f.o.b. Bremen).

W. G. Birkenshaw & Co. Ltd.: Pick beakers, (Ref. No. E.S.R. 10.182, total value £330 6s., delivered f.o.b. Liverpool).

Wm. Rose Hose Co. Ltd.: Flax canvas hose and felt (Order No. 43/500, items 1-3, total price £129 5s., f.o.b. Manchester).

R. R. Whitehead & Bros.: Flax canvas hose and felt (Order No. 43/500, item No. 4, total price £142 10s., f.o.b. Liverpool or London).

Ateliers Mécaniques S.A.: Helical drawbar springs (Order No. 21.869, total price £321 17s., delivered f.o.b. Antwerp).

Standard Telephones & Cables Limited: Repeater spare parts (Items 6 and 7, total price £400, f.o.b. London).

Skefko Ball Bearing Co. Ltd.: Axleboxes (Order No. 21.848, total value £300, delivered f.o.b. Gothenburg).

Fletcher Miller Limited, oil specialists to the engineering, textile, and leather industries, moved on October 3 from Alma Mills, Dukinfield, to premises at Hyde, near Manchester. The new telephone number is Hyde 781 and the telegraphic address "Emulsion," Hyde.

Unification of S.M.R. and North China Transport Corporation

At a recent meeting of the South Manchuria Railway board of directors at Mukden under the chairmanship of Mr. Matsuoka, the President, the unification of the S.M.R. and North China Transport Corporation was discussed, as was also the reform of the general directorate at Mukden. Mr. Kanji Usami, former Director of the S.M.R. and President-elect of the N.C.T.C., was present, and reported on instructions received in Tokyo; the corporation is expected to be established formally about November with a capital of about Y. 300 million, half vested in the North China Development Company and half borne by the S.M.R. and the Provisional Government of North China. The new corporation is to be staffed partly by officials from the S.M.R. and partly from the Japanese railways. As previously explained in THE RAILWAY GAZETTE, it will control all forms of transport in North China, and also, probably, ports and coal mines.

Railway Share Market

Home railway securities have participated in the rally shown by the stock and share markets as a result of the removal of war fears and more general hopes of a continued easing of tension in European affairs. It is not, perhaps, surprising there has been a certain amount of profit-taking following the movement to higher prices, but buyers were in evidence on any reaction, and there is a widespread feeling that the development of improved political conditions on the Continent should assist a better trend in trade activity. Sentiment has been affected to some extent by uncertainty as to a General Election during the next few months, although talk of this is less prevalent than earlier in the week.

Home railway stocks were unresponsive to the improved traffic figures for the past week, largely because the latter had been expected to reflect the exodus from large towns which took place when there were fears of war conditions. Nevertheless, the general belief is that from now on the receipts are likely to continue to make a

better comparison with those of a year ago, although it seems doubtful if the improvement can be sufficient to permit of more hopeful estimates in respect of dividends on the junior stocks.

Southern deferred has transferred around 12½ and the preferred ordinary around 55½. The disposition is to budget for a dividend of 4 per cent. on the latter, and in some quarters 4½ per cent. is considered possible, but a great deal must depend on the course of traffic receipts during the remainder of the year. Great Western was fairly steady and remained around 35½ following publication of the traffic figures for the past week. L.M.S.R. ordinary, in common with most of the junior stocks, failed to keep best prices touched during the past few days, but this was attributed largely to the general tendency of the Stock Exchange. The 4 per cent. first preference was a much firmer market around 54½ and the 1923 preference was also better at 28. L.N.E.R. first preference has improved on balance, in sympathy

with the general tendency, while the guaranteed stocks were also higher. In fact, this week the market has been none too well supplied with guaranteed and senior preference stocks. Similar remarks apply in the case of the debentures, and it is apparent that the majority of holders took a calm view during the very uncertain market conditions which prevailed in recent weeks, when good class securities were marked down heavily in price. Quite attractive yields continue to be given by Southern and Great Western guaranteed and preference stocks and also by L.M.S.R. 4 per cent. guaranteed. London Transport "C" was 76, in advance of the dividend announcement.

Argentine railway debentures were bought at better prices, but the B.A. Gt. Southern and B.A. Western preference stocks were lowered following the disappointing dividend decisions. San Paulo at 32 has regained part of the fall which followed the decision not to make an interim payment. American railway stocks were active at better prices.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1937-38	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to Date			Shares or Stock	Prices						
			Total this year	Inc. or Dec. compared with 1937		Totals		Increase or Decrease		Highest 1937	Lowest 1937	Oct. 5, 1938	Yield % (See Note)			
						This Year	Last Year									
South & Central America	Antofagasta (Chili) & Bolivia	834	2 10.38	£ 15,940	—	£ 5,050	40	£ 591,400	£ 660,740	—	£ 69,340	Ord. Stk.	29	101½	101½	Nil
	Argentine North Eastern ..	753	1 10.38	10,304	—	639	14	150,571	145,740	+	4,831	191½	6	4½	Nil	
	Argentine Transandine ..	—	—	—	—	—	—	—	—	—	—	A. Deb.	93½	60	80	5
	Bolivar	174	Aug., 1938	3,900	—	900	35	30,150	45,690	—	15,450	6 p.c. Deb.	91½	5	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	—	—	Bonds.	17	9	6	85½
	Buenos Ayres & Pacific ..	2,806	1 10.38	73,139	—	7,194	14	961,231	1,084,554	—	123,323	Ord. Stk.	17½	5½	5	Nil
	Buenos Ayres Central ..	190	17 9.38	\$136,309	+	\$2,900	12	\$1,381,200	\$1,722,900	—	\$341,700	Mt. Deb.	41½	18	11½	Nil
	Buenos Ayres Gt. Southern ..	5,084	1 10.38	124,628	+	5,459	14	1,646,279	1,634,802	+	11,477	Ord. Stk.	33½	13½	11	Nil
	Buenos Ayres Western ..	1,930	1 10.38	38,834	—	6,451	14	504,403	626,428	—	122,025	"	31½	8	8	Nil
	Central Argentine	3,700	1 10.38	100,862	—	36,225	14	1,387,923	1,842,510	—	454,587	"	34¼	10½	8	Nil
	Do.	—	—	—	—	—	—	—	—	—	—	Did.	20½	4½	3½	Nil
	Cent. Uruguay of M. Video ..	972	17 9.38	15,583	—	1,387	12	183,548	179,093	+	7,485	Ord. Stk.	67½	2	2	Nil
	Cordoba Central	1,218	—	—	—	—	—	—	—	—	—	Ord. Inc.	6¼	1½	3	Nil
	Costa Rica	188	July, 1938	23,262	—	1,426	5	23,262	24,688	—	1,426	Stk.	38	27	24	85½
	Dorada	70	Aug., 1938	17,600	—	700	35	132,200	122,400	+	9,800	1 Mt. Db.	107	106	105	51½
	Entre Rios	810	1 10.38	15,136	—	—	14	211,685	196,250	+	15,435	Ord. Stk.	197½	8	5	Nil
	Great Western of Brazil ..	1,092	1 10.38	9,400	—	300	40	255,800	288,100	—	32,300	Ord. Sh.	34	18	14	Nil
	International of Cl. Amer. ..	794	Aug., 1938	\$363,798	—	\$46,862	35	\$3,818,615	\$3,954,618	—	\$136,003	—	—	—	—	Nil
	Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	—	—	1st Pref.	2½	1/-	1½	Nil
	La Guaira & Caracas	22½	Sept., 1938	6,210	+	1,745	39	46,880	47,665	—	785	Stk.	8½	6	8½	Nil
Leopoldina	1,918	1 10.38	29,106	—	1,244	40	8,939,399	925,380	—	115,981	Ord. Stk.	94½	3	1½	Nil	
Mexican	483	30 9.38	\$379,700	—	\$51,600	13	\$3,447,100	\$4,048,300	—	\$601,200	"	1½	14	1½	Nil	
Midland of Uruguay	319	Aug., 1938	8,857	—	1,799	9	17,539	14,699	+	2,840	"	17½	2	1½	Nil	
Nitrate	386	30 9.38	5,012	—	639	39	110,195	118,014	—	7,819	Ord. Sh.	31½	2	17½	55½	
Paraguay Central	274	1 10.38	\$2,635,000	—	\$274,000	14	\$41,840,000	\$45,161,000	—	\$3,321,000	Pr. Li. Stk.	84	70¼	57½	55½	
Peruvian Corporation	1,059	Sept., 1938	64,805	—	25,148	13	212,517	263,674	—	51,127	Pref.	14½	41½	21½	Nil	
Salvador	100	24 9.38	£12,650	—	£625	13	£143,315	£148,284	—	£1,999	Pr. Li. Db.	23½	21½	22½	Nil	
San Paulo	160	Aug., 1938	2,710	—	1,845	9	6,220	7,495	—	1,275	Ord. Sh.	17½	11½	54	135½	
United of Havana	1,353	1 10.38	14,765	—	72	14	227,380	242,462	—	15,082	Ord. Stk.	59½	31½	1	Nil	
Uruguay Northern	73	Aug., 1938	909	+	103	9	1,783	1,593	+	190	Deb. Stk.	10	2	2	Nil	
Canada	Canadian National	23,750	30 9.38	1,198,990	+	23,514	39	26,067,486	29,215,059	—	3,147,573	—	—	—	—	Nil
	Canadian Northern	—	—	—	—	—	—	—	—	—	4 p.c.	77	62½	65	61½	
	Grand Trunk	—	—	—	—	—	—	—	—	—	101½	94½	98½	41½	Nil	
Canadian Pacific	17,186	30 9.38	1,079,006	+	124,400	39	20,069,200	21,020,400	—	951,200	Ord. Stk.	18	7¼	6½	Nil	
India	Assam Bengal	1,329	20 9.38	40,440	+	3,591	24	645,614	614,655	+	30,959	Ord. Stk.	86	73½	74½	4
	Barsi Light	202	10 9.38	3,337	—	1,112	23	66,307	59,482	+	6,825	Ord. Sh.	66½	46	57½	61½
	Bengal & North Western ..	2,116	20 9.38	66,497	+	4,597	24	1,307,976	1,384,111	—	76,135	Ord. Stk.	317	301	280	7½
	Bengal Dooars & Extension ..	161	20 9.38	4,870	—	41	24	66,423	66,640	—	217	"	100	84	82½	7¼
	Bengal-Nagpur	3,268	20 9.38	172,050	—	3,721	24	3,204,161	3,259,672	—	51,511	"	101	89	91½	4½
	Bombay, Baroda & Cl. India ..	3,085	20 9.38	232,275	—	17,700	24	4,031,700	4,117,800	—	86,100	"	113	110½	102½	57½
	Madras & Southern Mahratta ..	2,967	10 9.38	129,000	—	4,856	23	2,492,700	2,371,698	—	121,012	"	110	105	102½	8¼
	Rohilkund & Kumaon	546	23 9.38	11,343	—	18	24	262,126	254,242	—	2,116	"	314	302	285	6½
	South Indian	2,531½	10 9.38	119,938	—	1,530	23	1,858,275	1,865,757	—	7,482	"	103½	99½	100½	45¼
	Various	Beira-Umtali	204	July, 1938	81,454	—	15,948	44	864,515	774,298	+	90,217	—	—	—	—
Egyptian Delta		620	10 9.38	6,276	—	232	23	90,715	96,372	—	5,657	Prf. Sh.	31½	54	54	Nil
Kenya & Uganda		1,625	Aug., 1938	182,150	—	14,527	35	1,860,357	1,920,155	—	59,798	B. Deb	48½	43½	42½	84
Manila		—	—	—	—	—	—	—	—	—	Inc. Deb.	98	93½	90	47½	
Midland of W. Australia ..		277	Aug., 1938	14,414	—	1,736	9	27,657	22,923	+	4,734	—	—	—	—	—
Nigerian		1,900	20 8.38	30,408	—	16,239	21	614,583	1,012,819	—	398,236	—	—	—	—	—
Rhodesia		2,442	July, 1938	379,510	—	32,890	44	4,122,769	3,764,458	+	358,311	—	—	—	—	—
South Africa		13,263	17 9.38	628,265	—	34,278	25	14,994,347	15,470,839	—	476,492	—	—	—	—	—
Victoria	4,774	June, 1938	719,210	—	74,013	52	9,735,075	10,135,291	—	400,216	—	—	—	—	—	

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16

† Receipts are calculated @ 1s. 6d. to the rupee \$ ex dividend

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value